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No. 96.

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Attorney for Appellant

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1901.

No. 96.

CLARENCE W. BUSCH, Appellant,

v/s.

JOSHUA W. JONES AND THE W. O. HICKOK
MANUFACTURING COMPANY, Appellees.

BRIEF FOR APPELLEES.

The appellant in his "Specifications of Errors relied upon" has alleged ten errors, which fall into five general classes, the 1st specification relating to the jurisdiction of the Trial Court to entertain the suit; the 2nd, 3rd, 4th and 5th to the validity of the patent sued on and its several claims; the 6th to its infringement by the Appellant; the 7th to the action of the Trial Court in refusing, on motion of the Defendant, to vacate its interlocutory decree declaring the validity of the patent and its infringement and sending the cause to the Auditor of the Court for an accounting of damages and profits, and the 8th, 9th and 10th to the assessment of savings and profits by the Auditor. These several groups of alleged errors will be considered in their order.

1ST ASSIGNMENT OF ERROR.

Jurisdiction of the Trial Court.

The first assignment of error attacks the jurisdiction of the Trial Court. Several grounds appear to be urged and these will be briefly considered.

(a) It is urged that the Court below had not jurisdiction because the patent in suit had but a short time to run and expired before the taking of testimony in the case was completed, without any application for a preliminary injunction having been in the meantime made. It seems difficult to believe, in the light of the authorities and the facts of this case, that this objection can be seriously urged. The bill, which prayed not only for an accounting, but also for an injunction, both preliminary and final, was filed March 10, 1894, and the patent expired June 11, 1895, one day more than fifteen months afterwards. The pleadings were all in about June 1, 1894. Immediately after the summer vacation following plaintiffs' *prima facie* proofs were put in and were completed September 24, 1894, nearly nine months before the expiration of the patent. Mr. O. M. Hill, of Cincinnati, originally appeared for the defendant, attended at the taking of plaintiffs' proofs and cross-examined their witnesses. But shortly afterwards he fell sick and, after a lingering illness of some months, he died in January or February, 1895. Mr. Murray, appellant's present counsel, was employed to succeed Mr. Hill about March, 1895, and properly requested and was cheerfully given time to familiarize himself with the case, with the result that he took the testimony of four witnesses at Philadelphia on April 26 and 27, 1895, seven months after the completion of plaintiffs' proofs. Further time was requested by Mr. Murray to arrange for the examination of his expert witness, and on June 13 to 17 he took the testimony of his expert, Mr. Hood, concluding defendant's answering proofs nearly nine months after the completion of plaintiffs' *prima facie* case and six days after the expiration of the patent. Moving as promptly as possible the plaintiffs took their rebutting proofs in New York, Philadelphia and Wash-

ington on July 22-27, and the case was promptly put upon the Equity List for hearing in October.

These facts are recited for the purpose of showing that, although the bill was filed in ample time to obtain an injunction on final hearing, according to the usual course of Equity practice, yet that this purpose was defeated by the accident of the sickness and death of Mr. Hill and the introduction into the case of his successor.

The law upon this subject is well settled. If between the date of filing the bill and the expiration of the patent there is not sufficient time for the plaintiff to obtain equitable relief, the Court has no jurisdiction, e. g.; where the bill is filed one day before the expiration of the patent, *Davis v. Smith*, 19 Fed. Rep., 823; *Am. Cable Co. v. Citizen's Ry. Co.*, 44 id., 484; or four days, *Mershon v. Furnace Co.*, 24 id., 741; *Bragg Mfg. Co. v. Hartford*, 56 Fed. Rep., 292; or five days, *Burdell v. Comstock*, 15 id., 395. In all these cases it was held that, because of the clear insufficiency of time for obtaining equitable relief by injunction, the prayer for an injunction was a mere pretext for transferring a mere claim for damages from a Court of law to a Court of equity. But where, according to the usual course of equity practice in the particular Court, there is sufficient time to obtain equitable relief by injunction, either preliminary or final, the Court is justified in entertaining jurisdiction of the bill, and, having once properly acquired jurisdiction, will retain it for the purpose of granting complete relief by an accounting or otherwise, even after the expiration of the patent; and this is so, even though no motion for an injunction is actually made during the life of the patent; *Clark v. Wooster*, 119 U. S., 322, and cases cited (Patent expired 15 days after filing of bill, and it did not appear that an injunction was applied for; that it might have been applied for being considered by the Court to be sufficient); *Beedle v. Bennett*, 122 U. S., 71, 75; *Adams v. Howard*, 19 Fed. Rep., 317; *N. Y. Grape Sugar Co. v. Peoria Sugar Co.*, 21 id., 878, (three months—no injunction asked); *Toledo Mower & Reaper Co. v. Johnston Harvester Co.*, 24 id., 739 (26 days); *Adams v. Bridgewater Iron Co.*, 26 id., 324 (23

days—no injunction asked); *Brooks v. Miller*, 28 id., 615; *Kittle v. Graaf*, 30 id., 689 (21 days—no injunction asked); *Kittle v. Rogers and others*, 33 id., 49 (several cases, 30-50 days—no injunction asked); *Singer Mfg. Co. v. Wilson Sewing Machine Co.*, 38 id., 586 (4½ months); *Ross v. Ft. Wayne*, 63 id., 466 (2½ months); and other cases might be cited.

In *Clark v. Wooster*, supra, Mr. Justice Bradley, delivering the opinion of the Court, said:

"The bill does not show any special ground for equitable relief, except the prayer for an injunction. To this the complainant was entitled, even for the short time the patent had to run, unless the Court had deemed it improper to grant it. If, by the course of the Court, no injunction could have been obtained in that time, the bill could very properly have been dismissed, and ought to have been. But by the rules of the Court in which the suit was brought only four days' notice of application for an injunction was required. Whether one was applied for does not appear. But the Court had jurisdiction of the case, and could retain the bill, if, in its discretion, it saw fit to do so, which it did. It might have dismissed the bill, if it had deemed it inexpedient to grant an injunction; but that was a matter in its own sound discretion, and with that discretion, it is not our province to interfere, unless it was exercised in a manner clearly illegal. We see no illegality in the manner of its exercise in this case. The jurisdiction had attached, and although, after it attached, the principal ground for issuing an injunction may have ceased to exist by the expiration of the patent, yet there might be other grounds for the writ arising from the possession by the defendants of folding guides illegally made or procured whilst the patent was in force. The general allegations of the bill were sufficiently comprehensive to meet such a case. But even without that, if the case was one for equitable relief when the suit was instituted, the mere fact that the ground for such relief expired by the expiration of the patent, would not take away the jurisdiction, and preclude the court from proceeding to grant the incidental relief which belongs to cases of that sort. This has often been done in patent causes, and a large

number of cases may be cited to that effect; and there is nothing in the decision in *Root v. Railway Co.*, 105 U. S. 189, to the contrary. *Cotton Tie Co. v. Simmons*, 106 U. S., 89; *Lake Shore, &c., Railway v. Car-Brake Co.*, 110 U. S., 229; *Consolidated Valve Co. v. Crosby Valve Co.*, 113 U. S., 157; *Thompson v. Wooster*, 114 U. S., 104."

In *Adams v. Bridgewater Iron Co.*, supra, in which the life of the patent was but twenty-three days, the bill prayed for a perpetual, but not for a provisional injunction, and Judge Colt held that the Court had jurisdiction, remarking:

"The fact that no preliminary injunction was asked for we do not deem material. The bill prays for a perpetual injunction, and the plaintiffs had a right, at any moment, to amend their bill and ask for a provisional one. The case was cognizable in equity at the time the bill was filed, and it was not impossible to have obtained equitable relief during the life of the patent. It was not a mere device to transfer a plain jurisdiction at law to a court of equity, as courts have held where the patent has only several days to run."

In the face of doctrine so well settled and so abundantly administered in the courts, it is surprising that the jurisdiction of the Court below should be here attacked upon the ground that the patent had but fifteen months to run at the filing of the bill and expired before the final decree was entered, and it is still more surprising to find it charged in Appellant's brief that "the bill was evidently framed to avoid the question of jurisdiction." The bill was framed for no such purpose, but for the *bona fide* purpose of obtaining an injunction, and the Court below did grant an injunction restraining the defendant from using or selling any machine made or used by him prior to the expiration of the patent, as was suggested by Mr. Justice Bradley, in *Clark v. Wooster*, might be done, and as was done by Judges Wheeler, Blatchford and Nixon in the following cases, in which the power of the Court to grant injunction after the expiration of the patent,

is discussed and upheld: *Am. Diamond Rock Boring Co. v. Sheldon*, 1 Fed. Rep., 870; same *v. Rutland Marble Co.*, 2 id., 357; *Reay ex'x v. Raynor*, 19 id., 308; *Reay v. Envelope Co.*, id., 311; *Toledo Mower & Reaper Co. v. Johnston Harvester Co.*, 24 id., 739, and *N. Y. Belting and Packing Co. v. Magowan*, 27 id., 111.

Something further is predicated upon the destruction of the infringing machine during the pendency of the suit. It is not the fact, as is alleged in Appellant's brief (p. 6) that "at the first hearing, upon which the interlocutory decree was entered it clearly appeared that * * * the single machine used by Defendant had been destroyed by fire," etc. This did not appear until long afterwards, to wit: in the taking of the testimony in the accounting before the auditor (Record, p. 179). The hearing was had in October 1895, the interlocutory decree was entered February 11, 1896, and the testimony referred to was taken September 29, 1896. The fact of the destruction of the machine was not at the time of the hearing known to the Court or counsel for Plaintiffs. But even if it had so appeared at that time, the jurisdiction of the Court, which had properly attached upon the filing of the bill, could not have been ousted by the destruction of the machine and the cessation of the infringement.

(c) As a further objection to the jurisdiction of the Court below it is urged that the defendant was not a manufacturer, but "a mere user of one machine" and the damages could be easily measured by the difference between the cost and selling price of that machine, without reference to a Master, and therefore the plaintiffs had a plain and adequate remedy at law. Under similar circumstances precisely the same point was made, by counsel for appellant here, in *Mills Mfg. Co. v. Whitehurst*, 56 Fed. Rep., 589, 594, and some of the same authorities were cited in support of it. The Court disposed of the contention as follows:

"The second defense, that the complainant has an adequate remedy at law, and therefore is not entitled to sue in equity, must be overruled. *Crandall v. Manufactur-*

ing Co., 24 Fed. Rep., 738, which is especially relied upon, was a suit against a licensee for royalties, and has no application here. Nor has *Root v. Railway Co.*, 105 U. S., 189, where the patent had expired. The defendants are users, not manufacturers, but, if infringers, they may be enjoined; and that disposes of the objection to the jurisdiction."

Of the other authorities cited by appellant on the question of jurisdiction, *Ross v. City of Ft. Wayne*, 58 Fed. Rep., 404, was reversed by the Court of Appeals in *Ross v. Ft. Wayne*, 63 id., 466; in *Campbell v. Ward*, 12 Fed. Rep., 150, as in *Root v. Ry. Co.*, the patent had expired at the time the suit was brought, and in *Burdell v. Comstock*, 15 Fed. Rep., 395, *Davis v. Smith*, 19 id., 823, and *Mershon v. Furnace Co.*, 24 id., 741, the bill was filed within from one to five days of the expiration of the patent.

In *Hayward v. Andrews*, 106 U. S. 672, and in *Spring v. Sewing Mch. Co.*, 13 Fed., 446, the patent had not expired, but it was held in the former case that the assignee of the patent, to whom were also assigned all claims for damages for past infringement, could not maintain a bill in equity for the enforcement of such claims, upon the mere ground that he could not sue at law in his own name; while in the latter it was held that the assignor could not, after his assignment maintain a bill for the recovery of damages accruing during his ownership. In *Consolidated Middlings Purifier Co. v. Wolf*, 28 Fed., 814, and *Crandall v. Piano Mfg. Co.*, 24 Fed., 738, it was held that a bill in equity cannot be maintained by a licensor against his licensee, his remedy being by an action at law upon his contract. In *McDonald v. Miller*, 84 Fed., 344, where the patent had but 22 days to run and the subpoena was returnable after its expiration, Judge Seaman exercised the discretion, which it was held in *Clark v. Wooster* belonged to him, by dismissing the bill; as did Judge Blodgett in *Racine Seeder Co. v. Joilet Co., &c., Co.*, 27 Fed., 368 (decided before *Clark v. Wooster*), where the patent had two months to run. The remaining cases cited are cases of ejectment bills, bills for the delivery of

chattels, for the mere recovery of money, a bill discovery where it did not appear that the complainant was otherwise without sufficient evidence to establish his claim at law, &c. They establish merely that, where there is a plain, adequate and complete remedy at law, equity has no jurisdiction,—which is not disputed,—and beyond this they have no possible application to the case at bar. At the time of the filing of the bill in the present case there was a continuing infringement by the defendant of the patent in suit, which had still fifteen months to run, and it requires no citation from the abundant authorities construing R. S., section 4921, to show that, under such circumstances, a suit at law to recover damages for past infringement would be neither an adequate nor a complete remedy, and that nothing short of an injunction and an accounting of profits as well as damages would be. It is sufficient to refer to *Birdsell v. Shaliol*, 112 U. S., 485, 487, and *Tilghman v. Proctor*, 125 id., 136. In the former case, where, as in the case at bar, a bill in equity was filed by the patentee and his exclusive licensee against the user of a single machine, it was held that the court had jurisdiction, even after the recovery by the patentee of a judgment at law for damages against the manufacturer and satisfaction thereof. Mr. Justice Gray, after pointing out that a sale by the patentee or his licensee carries with it an implied license to use and sell throughout the entire term of the patent, says (p. 487):

"But an infringer does not, by paying damages for making and using a machine in infringement of a patent, acquire any right himself to the further use of the machine. On the contrary, he may, in addition to the payment of damages for past infringements, be restrained by injunction from further use, and, when the whole machine is an infringement on the patent, be ordered to deliver it up to be destroyed. *Suffolk Co. v. Hayden*, 3 Wall., 315, 320; *Root v. Railway Co.*, 105 U. S., 189, 198; *Needham v. Oxley*, 8 Law Times (N. S.), 604; *S. C. 2 New Rep. Eq. & Com. Law*, 388; *Frearson v. Loe*, 9 Ch. D., 48, 67. No more does one, who pays damages for selling a machine in infringe-

ment of a patent, acquire for himself or his vendee any right to use that machine. In the case of a license or a sale by the patentee, the rights of the licensee or the vendee arise out of contract with him. In the case of infringement, the liability of infringers arises out of their own wrongful invasion of his rights. The recovery and satisfaction of a judgment for damages against one wrong-doer do not ordinarily confer, upon him or upon others, the right to continue or repeat the wrong."

(c) But it appears to be suggested that the patentee was entitled to recover only the royalty or license fee, which it is assumed he established, and that an action at law would be a sufficient remedy for that purpose. But no such royalty or license fee was established. The exclusive license to make and vend, the Hickok Mfg. Co., agreed to pay to the patentee for that privilege 25 per cent. of the selling price of each machine sold; but this was not in the usual sense an established royalty, and certainly could not avail the infringer as against the rights of the exclusive licensee, which is a party to this suit. Beyond this the patentee was accustomed, upon the sale of a machine by the Hickok Co., to issue to the purchaser thereof a license to use upon that machine the process of "Dry-Pressing" covered by the 5th claim of the patent in suit. But this was not in any sense establishing a license fee, and the license issued was by its terms expressly limited to the particular machine, designated by style and number, and always a machine made under the patentee's own patents.

But even if such royalty or license fee had been established, it is definitely settled by *Tilgham v. Proctor*, 125 U. S., 136, that in such case a patentee has, as against an infringer, the election either to sue at law for the royalty or to proceed in equity for an injunction and an accounting, not only of damages, but also of profits. See also *Bragg v. City of Stockton*, 27 Fed. Rep., 509; *Brooks v. Miller*, 28 id., 615, and *Birdsell v. Shaliol*, *supra*, where is quoted with approval the following language of Lord Hatherley, in *Penn v. Bibby*, L. R. 3 Eq., 308:

"With regard to the damages, it has never, I think, been held in this court that an account, directed against a manufacturer of a patented article, licenses the use of that article in the hands of all the purchasers. The patent is a continuing patent, and I do not see why the article should not be followed in every man's hand, until the infringement is got rid of. So long as the article is used, there is continuing damage." "As to the royalties, I cannot compel the plaintiff to accept the same royalty from these defendants as he receives from others. I cannot in the decree do less than give the plaintiff his full right, and I cannot bargain for him what he may choose, or may not choose to do."

THE PATENT AND THE PARTIES.

The patent in suit, No. 204,741, granted June 11, 1878, to Joshua W. Jones, one of the plaintiffs in the Court below and one of the appellees in this Court, covers,—not, as is ingeniously suggested by counsel for appellant, a press and its mere function or mode of operation,—but, 1st. *A process of "dry pressing," or removing type indentations from printed sheets*, set forth in claim 5 of the patent, and, 2d. *A press of peculiar construction and adapted to the convenient carrying of this process in the effect*, the novel features of which press are covered by claims 1 to 4 inclusive; and this is substantially what is stated by appellant's own expert witness, Mr. Hood. His language so completely answers much that is assumed and argued in appellant's brief, that we quote it at length, in order that the Court may have, at the outset and before any discussion is entered upon, the deliberate view taken by appellant's expert of the general scope of the patent and the purpose of the invention. He says (Printed Record, pp. 100-1):

"A. The invention shown and described in the Jones patent, No. 204,741, relates to a means for removing from printed sheets the type indentations and elevations made during the process of printing, whereby a smooth surface is given to the back side of the printed sheet. One of the methods in common use for accomplishing this result, at the time of the filing of the ap-

plication of the Jones patent was as follows: A pile was formed of printed sheets and hard glazed boards, called fuller boards, arranged alternately, one on the other. The pile thus formed was placed between the platen and the follower of a suitable press and a powerful pressure applied. The pile being allowed to remain under pressure for several hours. The purpose of the Jones invention appears to be to save this great expenditure of time and to dispense with the use of the fuller boards. To this end Jones contrived the idea of retaining the pressure communicated by the press to the pile after the pile had been removed from the press. For this purpose he contrived a press in which the pile of printed sheets, made up without fuller boards, might be placed, a stiff board of substantially the same size as the printed sheets being placed at each end of the pile, and the platen and follower of the press being so constructed that cords might be conveniently passed around the package formed of the printed sheets and end boards, and securely tied while the pile was still in the press. A package was thus formed which, when removed from the press, would retain the printed sheets under pressure any length of time desired and leave the press free for use in forming other packages."

And the same view is somewhat more clearly set forth by appellees' expert witness, Mr. Robertson (Record, p. 35, Ans. 4), to which the Court is respectfully referred.

Counsel for appellant has, in his brief (p. 45), fallen into error in saying that there is nothing about "removing type indentations" in the patent or in the claims. In the 2d paragraph of the specification (Record, p. 93) it is said: "Fig 2 is a perspective view of a bundle of sheets tied and ready for setting aside as by *my process of treating printed papers or sheets to remove therefrom the indentations of type.*" And, having thus, at the very beginning of his specification, once stated in these explicit terms the object of his process, he thereafter calls it by the name by which it was, as we shall hereafter see, technically known in the trade, viz: "*dry-pressing.*"

Counsel for appellant appears to have been, in his understanding of the scope of the patent, somewhat con-

fused by the fact that, as an adjunct to the press, is shown and described a "Bulk Compressor," by means of which the large or swollen heads of folded sheets may be compressed preliminarily to their insertion in the press. But this "Compressor" is not covered by any of the claims, is not in controversy here and has in practice been found unnecessary. It was not claimed by defendant's expert witness to be essential either to the carrying out of the process or the operation of the press. It has really nothing to do with the case, and its introduction in appellant's argument tends only to confuse and in no respect to enlighten the discussion.

The patentee, Mr. Jones, on December 27, 1889, entered into a contract in writing with the W. O. Hickok Mfg. Co., of Harrisburg, Pa., by which he made said company his exclusive licensee to manufacture and sell machines made in accordance with the Letters Patent in suit. Said company was therefore joined as co-plaintiff in this suit, and the agreement is in evidence (Record, p. 96, *et seq.*). The defendant, Mr. Busch, was at the time the bill was filed, and both before and afterwards, State Printer, or contractor for the public printing of the State of Pennsylvania, his contract requiring, among other things, that the sheets of all the work done by him for the State should be "dry pressed." His printing establishment was at Harrisburg, Pa., but he was at the time the bill was filed an inhabitant of the District of Columbia, residing at Washington.

THE 5TH, OR PROCESS CLAIM, AND THE 2ND, 3RD AND 4TH
ASSIGNMENTS OF ERROR.

The 4th assignment of error charges "that the patent is void for want of invention, so far the fifth claim is concerned, because the process had been in use and practised without the use of any machine to assist in carrying out the alleged process long prior to any invention of Jones." Precisely what is meant by this language is not clear. It is nowhere distinctly referred to in the argument, nor is any evidence, upon which it could be based, pointed out.

If by the language above quoted, it is meant to say that,

prior to the Jones' invention, printed sheets were tied up in loose bundles by hand, we do not dispute the statement. But, as will hereafter appear, the process claimed is not the mere tying up of printed sheets in bundles, either by hand or by machine, but involves other matters which were entirely new with Mr. Jones.

The third assignment of error charges want of novelty because of prior patents and public use, and because the process was practiced on the so-called Palmer Press. The second assignment charges that the process, even if new, covers a mere function of the machine. These two points we will consider in their inverse order.

THE PROCESS.

The process referred to is clearly and for most purposes sufficiently described in claim 5 of the patent, as follows:

"The process herein described for treating folded printed sheets of paper in dry-pressing, the same consisting of subjecting a collection of such sheets to pressure without the use of fuller boards, and while under such pressure tying them into compact bundles with end boards, then removing them immediately from the press, and allowing them to remain tied sufficiently long to fix and complete dry-pressing."

THE STATE OF THE ART PRIOR TO THE INVENTION.

But in order to understand the full scope and value of the process it is necessary to refer briefly to the state of the art. As is well known, when a sheet of paper is passed through a printing press the fibre of the paper is to some extent displaced by the pressure of the type and impressions or indentations in the paper are thus produced, the displacement appearing on the side next the type as sunken, hollow or concave, and on the opposite side as raised or convex. When the sheet is reversed and the opposite side is printed upon,—care being always taken in good printing offices that the corresponding lines on the opposite sides of the paper shall accurately "register,"—the raised or convex surfaces are forced back and gener-

ally speaking the impressions now appear on the side last printed as concave and on the side first printed as convex, the general result being that, except from broken lines, spacing, &c., substantially all the impressions appear on one side of the sheet as convex and on the other as concave; and it is hence apparent that, when a number of unfolded sheets of the same signature are piled one upon another, the concave indentations of each sheet will substantially form a matrix for the convex indentations of the sheet next above or below it, depending upon whether the sheets are laid with their first or their last printed sides uppermost. To remove these type indentations and thus present a page of smooth and even surface, particularly in fine books, is a matter of great importance to book printers, and hence great labor and expense, when necessary to the attainment of this object, have not been considered wasted. The removal of these type indentations is technically known in the art as "dry pressing." ("Dry Press. A press in which the sheets are pressed smooth." Standard Dictionary, *verb.* "Dry;" "Dry Press (printing), one in which sheets are pressed smooth," Knight's Mech. Dict.: "Dry Press, *in printing*, a press for smoothing printed sheets;" Cent. Dict. *verb.* Press; "Removing the heavy impressions made by the printing press. Making the paper with a smooth surface," Grier, Record, p. 14, Ans. 19-20. That this is the sense in which the term is used in the patent is shown by the use of the phrase "remove therefrom the indentations of type" in lines 13-15 as synonymous with "dry-pressing" in the other parts of the patent.)

Prior to the Jones invention, "dry pressing" was a part of the work of the printer who delivered the sheets to the binder flat or unfolded (DeVinne, Record, p. 56, ans. 14; Nicholson, p. 62, ans. 15-16) and dry-pressed (DeVinne, p. 55, ans. 13; Nicholson, p. 60, ans. 7-8; Schrank, p. 168, ans. 33-35, and Davis, p. 175, ans. 25); and the process of dry-pressing as very slow and cumbersome (see DeVinne, pp. 55-6, ans. 1 et seq. and 23; Penicks, pp. 64, et seq., ans. 4 et seq.) and expensive (Penicks, p. 68, ans. 22, Robertson, p. 36, ans. 4. See also description of

the old process by Suydam, pp. 185-6, ans. 10-11, p. 188, ans. 28).

The sheets having been printed wet, or at least the ink being wet, the first step was to thoroughly dry them, which was done by hanging them on poles near the ceiling or on racks in a steam-drying room and allowing them to remain there some hours. (Penicks re-called p. 79, ans. 1; Jones, p. 31, ans. 38; DeVinne, p. 55, ans. 7.) Having been thus thoroughly dried—hence “dry-pressing”—the sheets were laid out flat and inserted between “glazed boards,” sometimes called “press boards,” and sometimes “fuller boards,” from their use by fullers in their preparation of cloth—a thin, very hard, highly calendered and very compact mixture of textile rubbish, of which oakum is a very large constituent”—(DeVinne, p. 55, ans. 5), closely resembling the “press board” used in the ordinary office “letter copying-press.” The number of sheets thus laid between each couple of “fuller boards” varied according to the character and quality of the work. “When the work was very fine and exact, one printed sheet was laid between these press boards. When it was not so exact, two or three sheets were put between the boards after being thoroughly dried” (DeVinne, Record, p. 55, ans. 6; see also Grier, p. 16, ans. 48; Robertson, pp. 43-4, ans. 19-20), or in the printing of public documents in the Government Printing Office, four sheets (Penicks, p. 68, ans. 22). The sheets with the fuller boards between which they were inserted were then piled in an Hydraulic Press and subjected to enormous pressure, which was retained upon them until the process of dry-pressing or removing the type indentations was completed, usually over night (Grier, p. 17, ans. 54; Jones, p. 31, ans. 38; Robertson, p. 36, ans. 4; re-called, p. 77, ans. 7; DeVinne, p. 55, ans. 8; Hood, p. 116, ans. 40), although in the Government Printing Office, where, perhaps, speed was of more consequence than completeness of finish, four hours appear to have been enough (Penicks, p. 68, ans. 22). But at all events they were allowed to remain in press a considerable time (Hood, p. 116, ans. 40).

One further step remained to complete the process,

namely: The pressure having been removed, to remove the mixed pile of sheets and fuller boards from the press, carefully separate them and distribute them to their respective piles. (Robertson, p. 36, ans. 4; Suydam, p. 188, ans. 28). It is apparent that the process of dry-pressing thus carried on involved great labor and therefore great expense, Theodore L. DeVinne testifying that "to fill and unfill a press" containing about 1,750 sheets, "would always take a man and a boy, sometimes a man and two boys, a day" (p. 55, ans. 9-12), and Mr. Penicks testifying that in the speedier and perhaps less exact work of the Government Printing Office, where presses of great capacity were used, it required the services of six men to dry press 24,000 sheets in a day.

It is also apparent that the use of "fuller boards" was essential to the success of this process. From what has already been said with respect to the indentations of each sheet forming a matrix for the corresponding elevations of the sheet next to it, it is evident that, in a pile from three to six feet high—according to the height of the press used—the indentations of the sheets removed a few inches from the head or foot of the machine, the points at which the pressure is applied to and distributed over the pile, would be rather protected from the pressure than otherwise affected by it, and that their effacement would be at least very irregular and uncertain. It was therefore necessary to interpose between the sheets at very short intervals hard substances—"fuller" or "press boards"—which should directly communicate the pressure to the raised surfaces of the paper and accomplish their effacement with certainty and regularity. It was indeed not contended by the defendant that in this process fuller boards could be dispensed with and Theodore L. DeVinne, than whom no one in this country is more competent to testify with regard to the art of printing, declared that he "never knew it to be done with success" (p. 57, ans. 26).

It was, however, contended on behalf of defendant that "fuller boards" were dispensed with in certain other pro-

cesses of removing indentations in use prior to the patent in suit, to wit: Treating folded sheets (a) by beating with a hammer, (b) by rolling and (c) by smashing and pressing in a hydraulic press and, misled by the terms "smoothness" and "solidity," the defendant's expert, Mr. Hood, cited upon this point passages from "The English Cyclo-*peadia, Arts and Sciences*" and "A Manual of the Art of Bookbinding," by James B. Nicholson. It is to be observed, however, that Mr. Hood had no practical acquaintance with either of the arts of printing or bookbinding (p. 111-2, ans. 8-13), and had never seen the operation of dry-pressing carried on (ans. 12). He thought that this operation was the work of the bookbinder (p. 112, ans. 14-18), although DeVinne, the printer, (p. 55, ans. 13), and Nicholson, the bookbinder and the author of the book referred to (p. 60, ans. 7-8), as well as defendant's witnesses, Schrank (p. 168, ans. 35), and Davis (ans. 26-8), all testify that it was the work of the printer. He considered the "gathering" and "collating" of sheets in the bindery as "the same process" (ans. 15-16), although his author, Nicholson, testifies that they are distinct operations (p. 61, ans. 14), (see also defendant's witness, McKee, p. 170, ans. 3), and generally he admitted that his testimony was based wholly upon the papers submitted to him in this case and some other publications which he does not name, and not upon any practical knowledge of either of the arts of printing or bookbinding (pp. 111-2, ans. 13). It is therefore not surprising to find him misled by the terms "smoothness" and "solidity" into the belief that the operations of "beating," "rolling" and "smashing," described in the works on bookbinding, had for their object, among others, the removal of the type indentations (ans. 21-35), but he admits that in the use of the hydraulic press *iron plates* are introduced "at intervals along the pile to evenly distribute the pressure" (ans. 22), a clear equivalent for the fuller boards, if the process had for its object the effacement of the type indentations.

In rebuttal the plaintiffs called Mr. Nicholson, who testified that the beating, rolling, *smashing*, &c., described in his book had nothing whatever to do with the removal

of type indentations, which had already been "done—or attempted to be done—by the printer," but that "*they were designed to make the book solid by driving out all the air that was in or between the sheets.*" If it were necessary to add anything to the testimony of Mr. Nicholson, it might be said that the beating of printed sheets with a hammer would not produce the result sought to be attained by dry-pressing, (a) because of the irregularity of the surface of the page necessarily resulting from such treatment; (b) because it would tend to blur the typography and smear the paper, and thus mar, instead of make, the beauty of the page, and (c) because a sudden blow of the hammer would not restore the displaced and elastic fibre to its original place, such result requiring continued pressure. (See Penicks, p. 67, ans. 17; Robertson, pp. 36-7, ans. 4; pp. 89, ans. 66.) And finally Mr. Hood himself admits (p. 115, ans. 34):

"The passages to which I have referred are undoubtedly for the instruction of the bookbinder, and if it is a fact that the printed sheets came to him with the type indentations removed, then the processes described do not necessarily include the removal of type indentations."

In other words his whole theory is built upon the assumption that dry-pressing was done by the bookbinder and not by the printer, an assumption which, as we have seen, is thoroughly disproved by the witnesses on both sides.

In the accounting before the Auditor the defendant again brought forward the smasher, this time as a means open to the defendant at the time of his infringement for accomplishing the same result as that accomplished by the use of the Jones process. The defendant did not directly testify that he had used a smasher for removing type indentations or "dry pressing," but that he had prior to his contract with the State of Pennsylvania done upon it the work he had subsequently done upon the infringing machine (Busch, p. 181, ans. 23). His statement, which was drawn out by a leading question of counsel, was very guarded and its explanation is that, prior to said contract,

Mr. Busch was a bookbinder and, the work of "dry-pressing" being that of the printer before delivering the sheets to the binder (see *supra*, p.), his experience in pressing printed sheets related only to the solidification of the gathered book for sewing or the other operations of binding. Such solidification is accomplished by the smashing machine (Record, Nicholson, pp. 60-1, ans. 9-10; Robertson, p. 73, ans. 3; Suydam, p. 186, ans. 14, p. 195, ans. 74; Jones, p. 199 ans. 13), and, as it is also accomplished by the Jones Press, the use of the smasher being dispensed with, (Busch, p. 183, ans. 40), he apparently fell into the mistake of considering their principal functions identical; and in his answer to question 30 (p. 182), in giving his reason for purchasing the infringing machine, he practically admitted that the smasher would not "dry-press."

But over against the unsupported and vague testimony of the defendant himself there is the direct and positive testimony of Mr. Suydam, a disinterested witness, and Mr. Jones, both men of very long and extensive experience, that type indentations will not be removed by a smashing machine (Suydam, pp. 194-7, ans. 69-80, 82-85; Jones, pp. 199-200, ans. 12-17; p. 205, ans. 30-32), and the reasons given by these witnesses must commend themselves to the Court, as they did to the Auditor, as conclusive. It is manifest without testimony that long continued and retained pressure is necessary to restore the disturbed and elastic fibres of the paper to their original seats, and such is the testimony of the witnesses on this point (Penicks, p. 67, ans. 17; Robertson, pp. 36-7, ans. p. 89, ans. 66; Suydam, *ut supra*, Jones, p. 169, ans. 14); while the dwell of pressure in the smashing machine is less than a quarter of a second (Jones, Rec., p. 199, ans. 14), and hence is relatively small, (Suydam, p. 191, ans. 47), and is manifestly insufficient to permanently efface the indentations. If the smashing machine could accomplish such purpose, it is astonishing that so distinguished a printer as DeVinne should have found that the Jones process enabled him "to dry press work which before was never dry pressed at all," e. g.; the "Century Magazine" (Record, p. 56, ans. 23).

We must here call attention to what is, no doubt, an unintentional misquotation in Appellant's brief (p. 13), of a definition of "smashing machine" said to be contained "in the dictionaries," viz: "A heavy and quick press used by bookbinders to flatten and smooth and make solid the springy folds of books before they are sewed." The particular dictionary is not named, but, inasmuch as in his brief in the court below the Appellant referred to a somewhat similar definition in the Century Dictionary, we may infer that the latter is the definition the quotation of which is attempted. The "Century" definition is: "A heavy and quick press used by bookbinders to flatten and make solid the springy *folds of books* before they are sewed." No mention is made of "smoothing," nor have we discovered any definition which does make such mention. But placing side by side the Century Dictionary's real definition of "smashing machine" and its definition of "dry-press," erroneously attributed by Appellant to the Standard Dictionary, viz: "Dry-Press—*In printing*, a press for *smoothing* printed sheets," the difference between the functions of the two machines clearly appears. The one is "*in printing*" "*for smoothing printed sheets*," i. e., for removing type indentations, &c. The other is "used by *book binders* to *flatten and make solid the springy folds of books* before they are sewed."

It thus appears that the only process of "dry-pressing" printed sheets in use prior to the date of the application by Jones for the patent in suit was the "ponderous old-style of pressing sheets between fuller boards," above briefly outlined and more fully described by plaintiff's witnesses, Robertson (1st deposition, pp. 35-7, ans. 4; 2nd deposition, p. 77, ans. 7) and Jones, (p 31, ans. 38), and to some extent by Grier (pp. 15-16, ans. 37 and 46-8), and DeVinne (pp. 54-6, ans. 4-14), and by defendant's witnesses Schrank (p. 168, ans. 33-35), Davis (p. 175, ans. 26-9), and Hood (p. 100, ans. 4). (See also Suydam, pp. 185-6, ans. 10-11, p. 188, ans. 28.)

THE JONES INVENTION.

Such being the state of the art Mr. Jones, who was at that time Superintendent of Public Printing of the State

of Pennsylvania, startled printers by the announcement of the process covered by the fifth claim of his letters patent here in suit. As we have seen, in the process used prior to the invention of Mr. Jones, sheets were dry-pressed only (1) after being thoroughly dried, (2) unfolded and laid flat in the press, (3) between fuller boards and (4) by retaining them under pressure in the press until the operation of dry-pressing was completed. The Jones process was an innovation in all four of these particulars. (1) The sheets are pressed wet or dry just as they come from the printing press without the preliminary drying required by the old process. (Penicks, p. 106). (2) They are pressed folded instead of being laid in the press flat. (3) Fuller boards are dispensed with and (4) the bundles, after being tied, are immediately removed from the press, the sheets being retained under pressure between rigid end boards by means of the tie until the process of dry-pressing is completed. All of these matters are important to the trade, involving great saving of space, labor, and expense, and in each of them the new process was a distinct advance in the art, with the general result that the removal of type indentations was performed not only much more expeditiously and cheaply but also much more effectually, and further that work could now be dry-pressed which, by reason of the cumbrousness of the old process, was formerly not submitted to dry-pressing at all.

The rationale of the Jones process as distinguished from that which preceded it is well stated by Mr. Robertson, and as the matter is one of some little difficulty we take the liberty of quoting at some length from his deposition (Record, pp. 35-7, ans. 4):

"Previous to the invention of Mr. Jones as described in said patent it was the custom to press printed sheets by inserting them between heavy paper boards, sometimes called 'fuller boards,' but generally now called 'glazed boards,' and putting said boards with the printed papers between them into a powerful press, by which pressure was produced on said boards by various means, sometimes by means of screw pressure, some-

times by hydraulic pressure. After the pressure was produced on the paper it was continued by allowing the press to remain with its pressure on to its fullest extent for ten to twelve hours or more, say from one night to the next morning, when the pressure was removed, the papers and boards taken from the press and separated by removing the boards from the pile of combined boards and paper, and putting the boards on one side on one pile and making another pile of printed papers. This was necessarily comparatively a slow process, inasmuch as with one press only as much printed paper as the press would hold when put between the boards could be pressed in about ten to twelve hours, so that where much work had to be done a number of such presses were necessary. It was also costly as to labor, because the sheets had to be placed between the boards and removed therefrom afterwards, which took much time, especially where, as in the case of fine work, only one sheet was placed between two boards; and when this was done comparatively few sheets could be pressed at once because the boards took up much more room than the paper did, they being quite thick.

By the process set forth in the patent the printed sheets are not allowed to remain in the press for any considerable length of time, but only long enough for the operator to tie up the bundle, when they are immediately removed, the entire process of putting the paper into the press, tying it up in the bundle and removing it therefrom taking but a few minutes.

As the entire operation, so far as the use of the press is concerned, only takes but a few minutes, which may be from two to five for each bundle, a large number of bundles may be pressed and tied up in the course of a day, and left tied up between the boards with the pressure upon them as long as is thought necessary to smooth out the impression produced by the printing press, or until the signatures may be wanted by the binder to complete the operation of making the book for which the signatures are printed. The printed paper or signatures are thus allowed to remain for a considerable time tied up in bundles, which time may be from twenty-four hours to three or four days, but may be extended to a year or more, *the longer the*

better, as it is upon the time in which the bundles remain tied up subject to pressure between the boards that the smoothness of the printed paper depends, the mere pressure produced by the press in the short time the paper remains in it having comparatively little effect upon the impression produced by the printing press. The pressure of the press and the mere tying up would produce but little effect if the signatures were immediately untied as soon as they were removed from the press and the long-continued pressure after the bundle has left the press is therefore an essential part of the process, and without which it would not be much of a success. There is one important difference between the old process and the new that I think has much to do with the success of the process set forth in the Jones patent, No. 204,741. In the old plan where two or more sheets were set between boards the convex side of the impression on one sheet came in contact with the concave side of the sheet above it, so that these sheets would have little or no effect upon each other in smoothing out the impression produced by the printing press, and especially would this be the case where half a dozen or more sheets were placed between two boards. In the new process described in the Jones' patent under consideration, the sheets when folded have the convex impression of one-half of a sheet brought in contact with the convex side of the other half of the sheet by the act of folding the sheet in two, provided the sheet when being folded had its convex side of the impression uppermost. If, on the contrary, the concave side of the impression were uppermost, the concave part of the sheet would be folded together, but on the second fold the convex sides would come together in the center of the fold, so that under any circumstances the convex part of the impression on one sheet would be pressed by or come in contact with the convex impression on the same sheet, or with the convex impression of another sheet coming next to it, and thus the convex impressions coming in contact with each other tend, when under pressure, to efface each other, and, as I believe I said before, the longer the pressure is continued by keeping the bundles tied up, the more the impression is effaced and the smoother the paper becomes, so that I regard it as important that, if the process is to be carried out success-

fully, the paper should be folded so that the convex impressions should come in contact with other convex impressions, and that the bundles of signatures when tied up should remain for a considerable period of time in the tied up condition under the pressure imparted to them by the press.

I have given at some length what I consider the main features of difference between the old and new processes, because in my opinion the process is one that is not easily understood at first, and very few would be likely to understand it unless the essential differences between it and the old process were pointed out."

Again in his second deposition (Record, p. 77, ans. 7), he says:

"In the old fuller board process the printed sheets were laid in an open state unfolded between fuller boards, which are comparatively thick sheets of paper or pasteboard, and the pile of printed sheets and fuller boards was set in the press, generally either a screw press or hydraulic press, and thus great pressure produced upon them. This was generally done over night so that the sheets could be under pressure all night long, and were removed from the press next morning, so as to allow of the press being used for another lot of sheets to be pressed the next night. I should have stated that besides the fuller boards there were a number of wooden boards set at intervals in the pile, and as there were frequently nearly as many fuller boards as sheets of printed paper, comparatively few sheets could be pressed at a time in a large press. As a consequence many presses were required in a large establishment, and many employees required to fill and empty the press.

In the Jones process the sheets are folded ready for the binder, and are then inserted in the bed of the press with the folded edges all in line, and with end boards at top and bottom of the bundle, after which the press is set in motion until the requisite pressure has been produced, when the operator passes the tie string around the bundle in one direction and then in the opposite direction and secures the end of the tie. The pressure is removed by running the head of the press away from the bundle and the latter removed for storage or carried to the binder, as desired, after which another lot of signatures is set in the press and pressed

and tied as before, so that with one press a very large number of sheets could be dry-pressed and tied in bundles in a very short time, and with even better results as to removing indentations than when the sheets are pressed between fuller boards in a hydraulic press. *These better results are due mainly to the fact that in the old-fashioned process, when two or more sheets are set between each two fuller boards, the concave part of one impressed sheet would rest upon the convex part of another; whereas in the Jones process one-half of the impressed convex indentations came into contact with corresponding convex indentations on the adjacent pages, whereby each convex indentation acted upon the convex indentation on the other page, and thus tended to flatten each other out."*

The difference between the two processes, so far as concerns the relation to each other of the concave and convex sides of the type indentations, may be thus graphically shown:

Fig. 1.



Fig. 2.



Fig. 1, representing the old process with the unfolded sheets, flat as they come from the printing press, laid between fuller boards and the consequent meeting of convex and concave sides of the impressions, and Fig. 2, representing the Jones process, in which no fuller boards are interposed and the folded sheets present convex side to convex and concave to concave. The bundle resulting from the Jones process is shown in "Complainant's Exhibit, Cut of Jones Bundle of Printed Signatures," and is as follows:

Fig. 3.



That the process invented by Mr. Jones was a surprise to those specially skilled in the art is shown by the testimony of the witnesses Penicks and DeVinne. The former, who was superintendent of the folding room of the Government Printing Office, at Washington for 25 years, thus narrates his doubts as to the feasibility of the Jones process and his astonishment at its results (pp. 64-5, ans. 5):

"In the year 1878 the Hon. John Defrees was Public Printer. He sent for me and Mr. Oliver Reed, who was then foreman of the press room, and said to us: 'There is a man by the name of J. W. Jones, who has invented a machine for removing indentations of type from sheets after they are folded. He has this machine running at the State Printing Office, at Harrisburg, Pennsylvania. I want you to act as a committee and go to Harrisburg, see this machine in operation and investigate the work.' We felt very skeptical about the claims of Mr. Jones for removing the indentations of type in signatures after they were folded, so we thought we would take some of the work that was printed in the Government Printing Office. We were not willing to go there and see the work that was printed by them and pressed. We took five hundred octavo sheets and five hundred quarto sheets. These signatures were given a heavy dose of ink for this especial purpose, and at the time I thought we were putting up a job on the Jones press, and that it would be impossible for them to remove the indentations of type from these thousand signatures, and there would be no set off of ink. So we went to Harrisburg, carried the thousand sheets to the State Printing Office, examined the workings of the Jones signature press, saw our thousand sheets pressed. We then sealed the bundles for fear that some one might tamper with them in our absence. These sheets were pressed at noon. The next morning we went to the State Printing Office and found the seals of the bundles unbroken. We opened the bundles, examined the sheets carefully, and to our astonishment the indentations of type were removed, and there was no set off of color, and the sheets were perfectly smooth. We then returned to Washington

with the thousand sheets, showed them to the Public Printer, and made a favorable report upon the work done by the Jones signature press. We recommended to him that he purchase one machine on trial."

And Theodore L. DeVinne, one of the most distinguished printers in America, formerly a junior partner and subsequently the head of a famous printing house, as an official of the well known society of *Typothetae*, taking "much interest in everything that related to the development of the printing art," acquainted with the literature of the subject and informed by personal observation of the processes used in the great printing houses of New York City, himself an author of books and contributions to trade and other journals in this country and England on the subject of printing, the printer of such publications as the "Century Dictionary," and the "Century Magazine," testifying specifically that at the date of the Jones application for the letters patent here in suit he was acquainted with the processes then in use, and that "it was part of" his "business to know all useful processes for dry-pressing"—this witness, thus pre-eminently qualified to testify as a practical expert with regard to the art in the successful prosecution of which he spent over a half century, testifies (p. 57):

"Q: 24. In what, as you understand it, do the chief features of the Jones process consist?

A. First—the novelty of pressing sheets in bulk after folding, without any press board between to protect against set-off. *I disbelieved in the possibility of the process until I was convinced by its practical working.*"

The idea of dry-pressing folded sheets was not new to this witness, and some process by which it could be done was apparently greatly desired by him.

"Q. 25. Was it possible by the methods in use prior to October 24th, 1877, to dry-press sheets in bulk after folding?

A. *It was not possible.* I had tried it many times to my sorrow and spoiled the work."

But it was Mr. Jones who taught those skilled in the general art of the process by which folded sheets might be dry-pressed, and that without the use of "fuller" or "press boards."

The same witness continuing his answer to question 24, states a second chief feature of the Jones process:

"Second. In the novel methods used for retaining pressure on these printed signatures after they left the press."

"Q. 30. What are the novel methods of retaining pressure upon the printed sheets after they have left the press in the Jones process as referred to in your answer to question 24?

A. To me the novelty consists in *tying up* the pressed signatures *between hard wood boards* in such a manner that *the pressure is not relaxed.*"

Both DeVinne and Penicks considered the Jones process a distinct advance upon the process preceding it. The former testifies:

"Q. 18. Have the Jones press and process been in continuous use in your establishment since 1879?

A. They have.

Q. 19. Please state the results of the use of the Jones press and process as compared with the old method of dry-pressing described in your preceding answers?

A. *It does better work and at less cost.* It saves waste of paper, and allows pressed signatures to be stored and handled with greater facility.

Q. 20. In what respect does it do better work?

A. *The pressing is more uniform.* In the old process of pressing by a screw or hydraulic press it often happened that indentations in some corner were not thoroughly removed.

Q. 21. Are they thoroughly removed by the Jones press ~~and~~ process?

A. *They are. The pressure is uniform throughout.*

Q. 22. Do you or not consider the Jones process an advance upon the processes in use prior to October 24, 1877?

A. *I do so consider it.*

Q. 23. In what respect and to what extent; please state as fully as you think proper?

A. *It enables me to dry-press work which before was never dry-pressed at all.* When the "Century Magazine" had the comparatively small circulation of 60,000 copies a month, we wanted to dry-press it by hydraulic presses, at that time the best machines in use. We made calculation as to the number of presses that would be required and the amount of space that the presses would occupy, and the cost of doing the work, and we gave up the project as being entirely impracticable. We got the Jones dry-presser at a later date because it seemed to us the only machine that could do the work quickly and with reasonable economy. We have also applied Jones dry-presser to many other books. The workmanship done by it has always been satisfactory to binder and publisher. This machine has enabled us to do a great deal of work, and do it well, within little time."

Mr. Penicks testifies on the same general subject as follows (p. 65 ans. 7-9):

"A. There was a great improvement in the appearance of the work, the indentations were removed uniformly, and there was a glossy surface produced by the signature press that was not obtainable from the old style of hydraulic pressing. The work pressed by these machines was advantageous, there being no waste of signatures that necessarily came from handling by the old process, and the *large saving by the process made the saving to the Government, the cost of the work, comparatively nothing.*

Q. 8. Did you or not consider the Jones press and process an advance in the art?

A. Most undoubtedly. It is one of the best pieces of machinery that was ever introduced into the printing and book-binding trades.

Q. 9. In what, as you understand it, did the novelty of the Jones process consist?

A. The novel part of it to me was the fact that you could *remove the indentations of type after the signatures had been folded, something that was never heard of before in my experience in the trade;* also the uniform manner in which the signatures were pressed, re-

moving all the swell in the head, back, and front of the sheets which necessarily occurs in folding; and the solidity of the bundles for books, making the signatures and bundles after being pressed as hard almost as a rock."

He then proceeds to state (ans. 11) the number of sheets which can be dry-pressed by the Jones process, ranging from 50,000 to 75,000, in a day of eight hours, and says that no man should be allowed to operate a machine "who does less than 50,000 in eight hours," and (ans. 22) states that in the Government Printing Office, by the old process about 24,000 sheets were dry-pressed per day in a single press at a cost in wages of \$12, while by the Jones process 50,000 sheets were dry-pressed in the same time in a single Jones machine at a cost in wages of \$2.40, a saving in wages per machine of \$9.60 per day, with more than double the output. The same witness, in his report to the Public Printer under date of August 3, 1886, (Complainant's Exhibit Thomas B. Penicks' letter of August 3, 1886, printed record, p. 91), states more fully the saving by the Jones process, and particularly that after the introduction of the first four Jones machines the pay rolls were reduced about \$68 per day.

Mr. Penicks in his deposition and in his several letters to the Public Printer, which are in evidence (printed record, pp. 90-91), states other items of great economy besides the mere saving in wages and great advantages resulting from the use of the Jones process other than that of economy.

Use of the Palmer Press No Anticipation of Claim 5.

In the face of all this, however, we are told by defendant's expert, Mr. Hood, that there is no invention in the process covered by the 5th claim of the Jones patent. We have seen that in his want of familiarity with the arts of printing and book binding he was misled by certain passages cited by him from printed publications, into the belief that the processes therein described were processes of dry-pressing, whereas in fact they related to entirely

different matters, and were applied to sheets gathered into books after being dry-pressed. Still more remarkable perhaps is his assertion with regard to the Palmer press—a crude bundling machine, concerning the proof of which more will be said hereafter—to wit (ans. 5):

“The process used in connection with the press shown in the Palmer sketch and described by the witness Schrank in his answer to question 22, is the same process as that described in claim 5 in the Jones patent in suit.”

This assertion is made in the face of the testimony of defendant's witness Schrank and others that, (1) the Palmer press was not used for the purpose of removing type indentations, but merely for the purpose of tying up sheets in bundles for storage, “just for making a neat bundle out of it for storage” (Schrank, pp. 167-8, ans. 36, 20-21, 32; Davis, p. 175, ans. 22-3; McKee, ans. 12); (2) the sheets were already dry-pressed by the printer by the old fuller board process before being delivered at the Palmer bindery (Schrank, p. 168, ans. 33-35; Davis, p. 176, ans. 26-29); (3) instead of the rigid end boards used in the Jones process for the purpose of distributing and retaining distributed the pressure upon the sheets, old pieces of paste-board were placed on the ends of the bundles to prevent the sheets from being cut by the cords (Schrank, p. 168, ans. 37-8)—“pasteboard or binder's board,” “to protect the sheets from being soiled. Paper would answer just as well” (Davis, p. 176, ans. 31-2); (4) the bundles were so loosely tied and apparently so crooked that when removed from the press it was the practice of the workmen to straighten them by knocking them upon the floor (Schrank, pp. 167-9, ans. 28-30), and (5) the press was incapable of being used for dry-pressing (Davis, p. 175, ans. 25).

It is apparent from the absence of the rigid end boards and the substitution therefor of flexible pasteboard, as well as the loose and crooked character of the bundles, that dry-pressing could have been neither aimed at nor attained in the use of the Palmer press as described by defendant's witnesses, and that Mr. Hood's opinion on

this point is as unwarranted as his opinion with regard to the "beating," "rolling" and "smashing" processes. And it is evident that the straightening of the bundles by knocking them upon the floor would cause the *rubbing of the raised surfaces produced by the type indentations and thus smear and blur the sheet* and wholly defeat the result so neatly attained by the Jones process, to wit: the removal of the type indentations without set-off; while the use of *flexible pasteboard* in place of *rigid* end boards would permit bulging in the middle of the bundle and thus, while perhaps to some extent effacing the indentations at the edges, would fail to efface them in the center of the page and thus produce work which would not be accepted by the publisher.

That the bundles of the Palmer press were loose and crooked is not surprising as it contained no guides to keep the gathered books pressed in it straight in piling. "We only used our eye in piling" (Schrank, p. 167, ans. 28), the pile as it rose apparently being steadied by the hand of the operator. Moreover it appears to have been impossible to pile sheets in with their backs all one way, and hence the gathered books "were piled up" back and front or "head and tail," an arrangement not conducive to good work in dry-pressing. On this point Mr. Penicks says, speaking of the trough of the Jones machine (pp. 66-7, ans. 15-16):

"Q. 15. In the Jones machine did the inclined trough perform any special function? If so, please state what it was.

A. Yes; the incline of the trough allowed the trough to be filled with signatures with the backs all one way, and the heads all one way, which otherwise could not be done by one person in an upright machine, as it would be almost impossible to pile up sheets a foot high with backs and heads all one way.

Q. 16. Was there any advantage in having the sheets with the heads all one way?

A. Yes; if the heads and backs were not laid all one way in pressing, the sheets would undoubtedly slip and the heads or backs of the sheets would be twisted and

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kinked, and by the sheets all lying one way it brings all the printed matter exactly over printed matter and thereby the indentations of type are more easily removed."

And he might have added that in the operation of dry-pressing the slipping of the sheets under pressure would undoubtedly break the protecting film of the ink and cause the sheets to be smeared and blurred.

Of Mr. Hood's conclusions with reference to the use of Palmer press Mr. Robertson speaks as follows (p. 76, ans. 3):

"In looking over my testimony, I find I omitted any reference to Mr. Hood's conclusions in reference to the Palmer press. As I understand such press, it is simply used for making bundles of signatures after they have been folded, so that they could be conveniently stored, and was not designed or used for the purpose of taking out indentations, nor were the bundles capable of being tied up in the same manner as they could be in the Jones press. As stated by the witnesses who gave evidence as to the construction of said press, it was necessary to lay two strings across each other in the bottom of the press, which strings were tied separately after the pressing was completed, thus entailing two operations where one only is necessary in the Jones press. I do not believe that the process carried out by the Palmer press is the same process as that described in claim 5 of the Jones patent, for the process of dry-pressing had already been carried out on the sheets before they were folded, as testified to by the witness Schrank in his answer to question 33; but independent of this, as there were no rigid end boards used it is impossible that the process referred to in claim 5 could have been carried out, even if the press had been powerful enough to produce the necessary pressure, which I doubt, especially in view of the fact, as stated by one of the witnesses who testified about the press, that when the bundles were crooked they could be straightened by striking them on the floor."

The difference between the bundles of the Palmer press and those of a signature press like the Jones press or the press used by the defendant is apparent. The former were

loose and crooked while those of the Jones press were "hard as a rock" (Penicks, p. 65, ans. 9), and those of the defendant's press were so compact that the point of a blade of a pocket knife could only with difficulty be forced between the sheets (Jones, p. 26, ans. 8.)

The Patents Cited as Anticipations of Claim 5.

Not less unwarranted is Mr. Hood's assumption that the Jones process is anticipated by the processes of baling hay and stable manure, described in letters patent Nos. 125,786 (baling short cut straw or hay), 169,518 (baling hay) and 181,389 (baling manure and other substances). One of the necessary elements of the Jones process is the use of the "rigid" "end boards," "of suitable size to nearly match the size of the folded work" for the purpose of distributing "the pressure over the whole area of the ends of the bundle." Mr. Robertson describes these functions on page 42 (ans. 11-13) printed record, to which the Court is respectfully referred.

Mr. Hood himself says (Record, p. 117):

"Q. 54. What, as you understand it, is the function of that rigid end board in the Jones patent?

A. *It is to distribute the pressure over the whole area of the ends of the package, and also to prevent cutting or marring the pages with the twine used in binding or tying the package."*

Turning now to the patents cited by Mr. Hood, we find that the invention in No. 125,786 "consists in a hollow cylindrical bale, braced at the ends by *segmental wooden strips* and hoops, cords or wires, arranged to extend across the strips and down the sides of the bale on planes parallel to the axis of the latter, whereby said hollow bale is very effectually bound *without impairing its ventilation*," the purpose of the use of the segmental wooden strips being not "to distribute the pressure over the whole area of the ends of the bundle," but to expose as much of the ends as possible and thus secure ventilation. In No. 169,518, "four sticks," which may be "sticks previously employed for baling long hay or other rough sticks," are arranged on the four edges of the ends of the top and bot-

form of the bundle, "the cross edge sticks BB," overlapping "the longitudinal edge sticks AA," and being held in place "by two or more thin wood slats CC," "arranged at a distance of two or three inches apart," one of the objects of the invention apparently being to avoid "a close covering on the same side of the bale" and thus to afford an opportunity for "evaporation." The invention alleged in No. 181,389, is substantially the same as that in No. 169,518, omitting the cross-slats CC of the latter, the only pressure on the bale being left as open as possible to "*provide desirable ventilation.*" It is, therefore, perfectly manifest that the "segmental wooden strips," "sticks," "slats" and "frames" shown and described in these patents are not in any sense the equivalents of the end boards described in the Jones patent and clearly shown in his drawing, Fig. 2, and that they do not perform the same function. Upon this subject Mr. Robertson testifies as follows (p. 74, ans. 3):

"Referring to the patents in the order in which Mr. Hood has mentioned them, I find that No. 181,389, issued to J. B. Archer, was for a patent for 'Baling Manure and other Substances.' In said patent there is shown a bale held under compression by means of cross-ties, and an open frame at top and bottom, and which open frames are incapable of producing the result aimed at in the Jones patent, for instead of removing indentations from sheets of paper, it would produce much worse indentations or impressions than those produced by the act of printing. The same remarks apply to the patents Nos. 169,518 and 125,786. The inventors, if they can be called such, of the bales shown in these three last mentioned patents never had the least idea of tying up the material they used under pressure for the purpose of removing indentations, nor would these patents, in my opinion, suggest to any one such an idea. As a matter of fact, the matter put up in such bales, instead of being smoothed or the indentations removed from it, had a much greater number of indentations put into it by the pressure than it had before it went through the operation of pressing and tying. There is nothing in the patents just referred to, even

when taken in connection with the extracts from the Nicholson work and Cyclopaedia, that would in anywise suggest the discovery made by Mr. Jones, that indentations could be removed from printed matter by the process described in his patent." (See also Penicks, p. 66, ans. 14.)

It is contended at considerable length in appellants' brief that the Jones process might have been practiced on the press of the Dingman patent. The complete answer is that *it was not*. Moreover it is evident it could not be without such changes in the construction of the press as would involve invention, and, even if the press were suitable to carry it out, it would not follow that the *process* was not new with Jones.

If it is true that these processes were identical with that of the Jones patent, which as we have seen is considered as of great value by printers, it seems astonishing that they were not earlier applied by such printers as DeVinne, for instance, to the treatment of printed sheets, and that it was left for Mr. Jones to introduce it into the art, after the grant of his patent in 1878.

But without prolonging the discussion it is confidently submitted that Mr. Hood's theory that the Jones process was anticipated, either by the loose bundling in the Palmer press of sheets already dry-pressed and gathered into books or by the baling of straw, hay and stable manure according to the patents cited, is wholly unwarranted and that upon all the evidence Mr. Jones stands as the inventor of a process of dry-pressing wholly new, clearly useful and involving invention of a very high order and in every respect a great advance in the art.

DOES THE FIFTH CLAIM SET FORTH A PATENTABLE PROCESS?

At the final hearing of this case the only defenses set up to the 5th or process claim of the patent were those suggested by defendant's expert witness, Mr. Hood, and above discussed, viz: anticipation and want of invention. The motion to vacate the interlocutory decree was, however, mainly based upon a new defense, viz: that the 5th

claim was not a valid process claim within the intimations of the Supreme Court in *Risdon Locomotive Works v. Medart*, 158 U. S., 68. This defense was thus brought forward for the first time, nearly three years after the entry of the interlocutory decree, although the final hearing was had six months after the decision of the case referred to, and, as no intimation of this defense was given during the taking of the testimony, of course no expert evidence addressed to it was given on either side.

The Medart case did not announce, and was not intended to announce any new doctrine and all that it actually decides is that "a valid patent cannot be obtained for a process which involves nothing more than the operation of a piece of mechanism, or, in other words, for the mere function of a machine," (p. 77); and such is stated to be its effect in *Westinghouse v. Boyden Power Brake Co.*, 170 U. S., 537, 556. But in the Medart case Mr. Justice Brown, in delivering the opinion of the Court, after remarking: "that certain processes of manufacture are patentable is as clear as that certain others are not, but nowhere is the distinction between them accurately defined," said:

"It may be said in general that processes of manufacture which involve chemical or other similar elemental action are patentable, though mechanism may be necessary in the application or carrying out of such process, while those which consist solely in the operation of a machine are not. Most processes which have been held to be patentable require the aid of mechanism in their practicable application, but where such mechanism is subsidiary to the chemical action, the fact that the patentee may be entitled to a patent upon his mechanism does not impair his right to a patent for the process; since he would lose the benefit of his real discovery, which might be applied in a dozen different ways, if he were not entitled to such a patent. But, if the operation of his device be purely mechanical, no such considerations apply, since the function of the machine is entirely independent of any chemical or other similar action."

This language has been much misinterpreted and has created the impression among some that no process is patentable which is in its nature mechanical and does not involve "chemical or other similar elemental action." But it is not so held, and the same learned Justice in the more recent case of *Westinghouse v. Power Brake Co.*, declares the question to be an open one. He there says (p. 556-7):

"Most of the prior authorities upon this subject are reviewed in the recent case of *Ridson Locomotive Works v. Medart*, 158 U. S., 68, in which it was also held that a valid patent could not be obtained for a process which involved nothing more than the operation of a piece of mechanism, or the function of a machine. See also the same effect *Wicke v. Ostrum*, 103 U. S., 461, 469. These cases assume, although they do not expressly decide, that a process to be patentable must involve a chemical or other similar elemental action, and it may be still regarded as an open question whether the patentability of processes extends beyond this class of inventions."

And a little further on in the same opinion he shows that processes involving neither "chemical or other similar elemental action," such as manufacturing paper bags and weaving hammocks, have been held patentable by respectable authorities, and he cites *Eastern Paper Bag Co. v. Standard Paper Bag Co.*, 30 Fed. Rep., 63; *Union Paper Bag Manufacturing Co. v. Waterbury*, 39 Fed. Rep., 389; *Travers v. Am. Cordage Co.*, 64 Fed. Rep., 771, to which other cases might be added.

Two things, which are important in our discussion, are clear from the language of Mr. Justice Brown in the *Medart* case; 1st, That a process may be patentable which involves the use of mechanism, and 2nd, That in such cases, the inventor may be entitled to patents upon both his mechanism and his process. And these propositions are fully supported by all the cases in which process patents are considered.

The Cases Involving Process Claims.

It may be well to briefly review the more important cases upon the subject of process claims.

In *O'Reilly v. Morse*, 15 How., 62, Chief Justice Tawney, in the opinion of the Court, said (p. 119):

"Whoever discovers that a certain useful result will be produced, in any art, machine, manufacture, or composition of matter, by the use of certain means, is entitled to a patent for it; provided he specifies the means he uses in a manner so full and exact, that any one skilled in the science to which it appertains, can, by using the means he specifies, without any addition to, or subtraction from them, produce precisely the result he describes. And if this cannot be done, by the means he describes, the patent is void. And if it can be done, then the patent confers on him the exclusive right to use the means he specifies to produce the result or effect he describes, and nothing more. And it makes no difference, in this respect, whether the effect is produced by chemical agency or combination; or by the application of discoveries or principles in natural philosophy known or unknown before his invention; or by machinery acting altogether upon mechanical principles."

In *Tilgham v. Proctor*, 102 U. S., 707, 728, Mr. Justice Bradley, after quoting the above language of the Chief Justice in *O'Reilly v. Morse*, said:

"It seems to us that this clear and exact summary of the law affords the key to almost every case that can arise. 'Whoever discovers that a certain useful result will be produced in any art by the use of certain means is entitled to a patent for it, provided he specifies the means.' But everything turns on the force and meaning of the word 'means.' It is very certain that the means need not be a machine, or an apparatus; it may as the court says, be a *process*. A machine is a thing. A process is an act, or a mode of acting. The one is visible to the eye,—an object of perpetual observation. The other is a conception of the mind, seen only by its effects when being executed or performed. Either may be the means of producing a useful result."

It is true that Mr. Justice Bradley, immediately following the above passage, instances as process "the heating of a substance to a certain temperature," which would

probably involve "elemental action. But this was merely an illustration and there was no evident thought of restricting the notion of "patentable process" to cases of that kind. On the contrary, he said broadly: "A process is an act or a mode of acting." It is also true that in *Corning v. Burden*, 15 How., 252, 257-8, Mr. Justice Grier, in delivering the opinion of the Court, speaks of processes "by chemical action" and "by the operation or application of some element or power of nature," and instances the arts of tanning, dyeing, making water-proof cloth and vulcanizing India-rubber, and, further on, says that "the term process * * * * will include all methods or means which are not effected by mechanism or mechanical combinations." But he also expressly refers to the "application * * of one substance to another" as a process. He is here distinguishing between a process and the mere function of a machine, and his language should be read in connection with what he said, at the same term, in his dissenting opinion in *O'Reilly v. Morse*, supra., with respect to the patentability of the art of printing, which is purely mechanical and does not "involve chemical or other similar elemental action." He said (pp. 131-2):

"The great art of printing, which has changed the face of human society and civilization, consisted in nothing but, a new application of principles known to the world for thousands of years. No one could say it consisted in the type or the press, or in any other machine or device used in performing some particular function, more than in the hands which picked the types or worked the press. Yet if the inventor of printing had, under this narrow construction of our patent law, claimed his art as something distinct from his machinery, the doctrine now advanced, would have declared it unpatentable to its full extent as an art, and that the inventor could be protected in nothing, but his first rough types and ill contrived press."

This illustration doubtless did not support the contention of the learned Justice in favor of Morse's 8th claim, but, we submit, it does conclusively demonstrate the pat-

entability of an art or process which is wholly mechanical and involves neither "chemical" nor "other similar elemental action."

In *Cochrane v. Deener*, 94 U. S., 780, Cochrane had at the same time taken out five patents relating to the bolting of flour, one of which was for the process and the remaining four were for apparatus for carrying out the process. The process consisted of passing the ground meal through a series of bolting-reels clothed with cloth of progressively finer meshes, which passed the superfine flour and retarded the escape of the finer and lighter impurities; and, at the same time, subjecting the meal to blasts or currents of air introduced by pipes so disposed that the force of the blast might act close to the surface of the bolting cloth; by which means the superfine flour was separated and the impurities got rid of. It was held that the patent was valid and that the patentee was not limited to any special arrangement of the machinery. In delivering the opinion of the Court, Mr. Justice Bradley used this oft-quoted language:

"A process is a mode of treatment of certain materials to produce a given result. It is an act, or a series of acts, performed upon the subject-matter to be transformed and reduced to a different state or thing. If new and useful, it is just as patentable as is a piece of machinery. In the language of the patent law, it is an art. The machinery pointed out as suitable to perform the process may or may not be new or patentable; whilst the process itself may be altogether new, and produce an entirely new result. The process requires that certain things should be done with certain substances, and in a certain order; but the tools to be used in doing this may be of secondary consequence."

In commenting upon *Cochrane v. Deener* in the *Medart* case, Mr. Justice Brown said (p. 76): "It will be observed in this case that the process for which the patent was sustained was not chemical in its nature, but, as stated in the opinion of the Court, was a series of acts performed upon the subject-matter to be transformed and reduced to a different state or thing." And it is to be further

observed that the blast of air which rendered effective the purifying operation was produced by the purifying apparatus. Perhaps the distinguishing feature of the case is the fact that the inventor, after having, by means of his apparatus, set in motion the currents of air, availed himself of the elemental quality of the air, viz: its fluid action, for floating the lighter impurities and depositing the heavier flour, but the case appears to be a complete answer to the view that mechanical processes, even when carried on by the use of machinery, are necessarily unpatentable, and overwhelmingly refutes the suggestion made by some that no process is patentable which does not involve chemical action.

In *New Process Fermentation Co. v. Maus*, 122 U. S., 413, where the process was one of clarifying beer, and hence was, at least to some extent, chemical, Mr. Justice Blatchford, in delivering the opinion of the Court, said (pp. 427-8):

"Within the rules laid down by this court in *Corning v. Burden*, 15 How., 252, 267, in *Cochrane v. Deener*, 94 U. S., 780, 787, 788, and in *Tilghman v. Proctor*, 102 U. S., 707, 722, 724, 725, we think that the method or art covered by the third claim of the patent is patentable as a process, irrespective of the apparatus or instrumentality for carrying it out. It is the performing of a series of acts upon the beer in the krausen stage, producing new and useful results in the art of making marketable beer."

and, after briefly describing the process, he continued:

"This is, as was said in *Cochrane v. Deener*, 'a mode of treatment of certain materials to produce a given result,' and 'an act, or a series of acts, performed upon the subject matter to be transformed and reduced to a different state or thing,' and 'requires that certain things could be done with certain substances, and in a certain order.' *It is, therefore, a process or art.* The apparatus for carrying out the process is of secondary consequence, and may itself be old, separately considered, without invalidating the patent, if the process be new and produces a new result."

It is to be observed that although "chemical or other similar elemental action" was here involved, there is no mention of that fact and no attempt is made to limit the definition of art or process by it. On the contrary, the definition is stated broadly and the decision of the case is put upon the same broad ground as that in *Cochrane v. Deener*.

In *Eames v. Andrews*, 122 U. S., 40, the Driven Well Patent was broadly sustained, after much, very protracted and hotly contested litigation. The claim in that patent was as follows: "The process of constructing wells by driving or forcing an instrument into the ground until it is projected into the water without removing the earth upward, as in boring, substantially as herein described." Here again every step and every instrumentality employed in the process was mechanical, but here again it may be said that the inventor availed himself of the tight packing of the earth around the driven tube to form an air-tight connection with the surrounding earth and thus relieve the water in the well from atmospheric pressure; and to that extent the process involved "elemental action."

In *Lawther v. Hamilton*, 124 U. S., 1, the patent was for a process of extracting oil from seeds. Prior to the invention of Lawther the method used was: (1) Crushing the seed between revolving rollers; (2) passing the crushed seed through muller-stones, by which it was pulverized; (3) treating with heat and moisture, by steam or otherwise, and (4) finally subjecting to hydraulic pressure, by means of which the oil was extracted. The inventor ascertained, "by practice, that in crushing the seed the tearing, pulverizing action of the muller-stones was injurious, and so he dispensed with that mechanical operation in the crushing step of the process, and employed the rollers alone. He thereby simply omitted one of the instrumentalities previously used in the first stage of treatment of the seed." The Court below held the patent to be invalid upon the ground that, although the omission of the muller-stones was a useful improvement yet, as each step in the process was old, to wit: the crushing of the

seed, heating and moistening it and finally the application of hydraulic pressure, "the discovery or invention was not of a new series of acts or steps constituting the process, but only of certain mechanical changes in carrying into effect the well-known old steps of the process;" and while he might be entitled to a mechanical patent, he was not entitled to a process patent. The Supreme Court in reversing this decision, Mr. Justice Bradley delivering the opinion, said :

"The view thus taken by the Court below seems to us open to some criticism. If, as that Court says, and we think rightly says, the omission of the muller-stones is a real improvement in the process of obtaining the oil from the flaxseed; if it produces more oil and better oil cakes, and it is new, and was not used before; why is it not a patentable discovery, and why is not such new method of obtaining the oil and making the oil cakes a process? There is no new machinery. The rollers are an old instrument, the mixing machine is old, the hydraulic press is old; the only thing that is now is the mode of using and applying these old instrumentalities. And what is that but a new process? This process consists of a series of acts done to the flaxseed. It is a mode of treatment. The first part of the process is to crush the seed between rollers. Perhaps, as this is the only breaking and crushing of the seed which is done, the rollers are required to be stronger than before. But if so, it is no less a process."

It is to be observed that in this case the process was clearly mechanical—unless it should perhaps be thought that the heating and moistening of the seed involved "elemental action"—and the Court limited the invention to the use of the kind of instrumentality described for crushing the seed, to wit: "powerful revolving rollers." See also remarks of Mr. Justice Blatchford upon this case in *Crescent Brewing Co. v. Gottfried*, 128 U. S., 158, 168.

We have already cited several cases decided by Circuit Courts and referred to by Mr. Justice Brown in *Westinghouse v. Power Brake Co.*, in which process patents for making paper bags and weaving hammocks were sus-

tained by such experienced and eminent patent lawyers as Judges Colt, Wallace and Coxe. To these may be added several cases decided since the Medart case and in which that case was considered.

In *Am. Fibre-Chamois Co. v. Buckskin-Fibre Co.*, 72 Fed. Rep., 508, the Circuit Court of Appeals in the Sixth circuit held patentable "a process of rendering wood-fibre paper soft and pliable by moistening it with a thin water solution of gelatin, then crumpling and pounding it and finally drying and smoothing it." It is true that Judge Taft, in delivering the opinion of the Court, in reply to the contention that the process must be held invalid under the authority of the *Locomotive Works v. Medart*, thought he saw in the moistening of the paper and the treatment of it in a moistened condition something resembling chemical action, but the decision is put upon the authority of *Cochrane v. Deener*, and Mr. Justice Bradley's definition of a process there.

In *Chicago Sugar Refining Co. v. Glucose Co.*, 84 Fed. Rep., 977, the Court of Appeals for the Seventh Circuit sustained the validity of a claim for: "The process of treating corn in the manufacture of starch, glucose, and other products, etc."

The apparatus for carrying out the process was pointed out in the specification and was covered by another patent to the same inventor. In delivering the opinion of the Court, Judge Showalter, after considering *Corning v. Burden*, *Locomotive Works v. Medart*, *Eames v. Andrews* and *Cochrane v. Deener*, puts the decision upon the ground that the apparatus pointed out was merely "subsidiary to the process," supplying "the conditions under which the process, the operation of natural forces, goes on towards the ultimate result of obtaining from the corn the starch, the oil germs, and the hulls." And elsewhere in the opinion (p. 980) he says: "The apparatus is functional, towards the result intended, only as supplying conditions under which movements and changes of structure due to the natural qualities of the substance treated take place,"—language which is peculiarly applicable to the present case.

In *Melvin v. Thomas Potter, Sons & Co.*, 91 Fed. Rep., 151, Judge Dallas sustained a patent for

"the process of manufacturing linoleum floor cloth, consisting in forming sheets of spongy texture from linoleum composition, cutting these sheets into shapes, arranging the shapes on a block or form, placing the shapes against a canvas, pressing the block until the shapes adhere to the canvas, removing the blocks and finally heating and again pressing the materials, substantially as set forth."

In the course of the opinion he said:

"Notwithstanding the decision of the Supreme Court in the leading case of *Corning v. Burden*, 15 How., 252, some processes of manufacture are certainly patentable, although no test by which they may be distinguished from those which are not, and which can be definitely applied to all cases, has been authoritatively established, *Locomotive Works v. Medart*, 158 U. S., 71, 15 Supt. Ct., 745. But no universal test need now be suggested, and I will not venture to propose one. It is sufficient for the present purpose to say that the criterion set up by the respondent can not, in this instance, be adopted. The question is not whether the mode of operation described and claimed by Melvin is chemical or is mechanical, but whether it is in fact a process, or is merely an aggregation of mechanical functions. I find no warrant in the authorities for the assumption that, unless a chemical change be effected by a process, no patentable invention or discovery can be involved in it. It is true that in both *Corning v. Burden* and *Locomotive Works v. Medart* processes involving chemical reaction were contrasted with methods which comprise nothing but successive mechanical steps to produce a merely mechanical change in the substances operated upon. In doing this, however, the Courts were illustrating, not defining, the difference between a patentable and an unpatentable process."

And after quoting the well-known language of Mr. Justice Bradley in *Cochrane v. Deener*, he continued, referring to that case:

"This, as was observed in *Locomotive Works v. Medart*, *supra*, was said in a case in which a patent was sustained for a process which 'was not chemical in its nature, but, as stated in the opinion of the Court, was a series of acts performed upon the subject-matter to be transformed and reduced to a different state or thing.' This terse description of the process which was held to be patentable in *Cochrane v. Deener* may, with perfect aptitude, I think, be applied to the process now under consideration."

In *Simonds Rolling Mach. Co. v. Hathorn Mfg. Co.*, 93 Fed. Rep., 958, the Court of Appeals for the First Circuit, affirming the Circuit Court (90 Fed. Rep., 201), sustained a patent for

"the method herein described of making rolled-metal forgings by acting upon all parts of a metal bar in spiral lines, so as at each part in succession and upon such lines to cause the bar to rotate, and to strain and spread the metal axially, and compress it to the required shape and size."

In the Circuit Court Judge Putnam had before him the cases discussing the patentability of processes, including *Westinghouse v. Power-Brake Co.*, and he held the invention of the patent to come "within the statutory term 'Art,' in that it involved the application of knowledge or science to effect the desired result and did it;" and with respect to this patent his decision was confirmed by the Court of Appeals. It is to be observed that the method or process of this patent was exclusively mechanical, the mechanism by which it was carried out being pointed out in the patent and in part, at least, covered by a prior patent to the same inventor.

The latest case is *Chisholm v. Johnson*, 106 Fed., 191, in which Judge Bradford held valid a patent for a process of hulling peas by impact, produced by the operation of a machine, holding, however, that the process involved a new application of the forces of nature.

To these we may add several additional cases decided before the Medart case. In *Hake v. Brown*, 37 Fed., 783,

Judge Wheeler held valid a claim for "a method of making bevel-edged cards, and ornamenting the edges by piling them obliquely so that the slope of the pack corresponds to the desired bevel, compressing them to hold them in position, beveling, ornamenting and finishing the whole pack on the sloping edge and successively treating the other sides and ends in the same manner." But, as bevel-edged cards were old, and as those made by the process differed from others in no way unless in design, claim two of the same patent, which was for card treated in the manner described, was held invalid.

In Clement Mfg. Co. *v.* Upson & Hart Co., 50 Fed., 538, Judge Shipman held patentable a claim "for an improvement in the manufacture of cutlery and tools, consisting in simultaneously welding a tubular handle to a blade and closing up the opposite end of the handle by forging between dies."

In Watson *v.* Stevens, 51 Fed. Rep., 757, decided by the Circuit Court of Appeals for the First Circuit, the patent in controversy was for the method of and apparatus for compressing shank stiffeners. Two claims were in issue, the first being for the machine and the second for the method in which the machine was used. Both claims were sustained, although the latter covered a method or process which was purely mechanical, no elemental action being involved, and was carried out by the use of the machine covered by the first claim.

It may be well to look at the cases which are cited on the other side of the question. In Risdon *v.* Medart Mr. Justice Brown cites the following cases in which processes have been held not to be patentable, viz: McKay *v.* Jackman, 12 Fed. Rep., 615; Brainard *v.* Cramme, 12 Fed. Rep., 621; Gage *v.* Kellogg, 23 Fed. Rep., 891; Hatch *v.* Moffit, 15 Fed. Rep., 252; Sickels *v.* Falls Co., 4 Blatchf., 508; Excelsior Needle Co. *v.* Union Needle Co., 32 Fed. Rep., 221. But an examination of these cases shows that in every one of them the alleged process was merely the function or operation of a patented machine without any co-operation of forces or instrumentalities outside of the machine.* And in most of them the alleged process claim

was an afterthought and was sought to be covered by a reissued patent. The process claim was therefore held void as merely functional and in most of the cases upon the additional ground that it was improperly included in the reissued patent.

The appellant has cited several cases which may also be examined. In *Wells Glass Co. v. Henderson*, 67 Fed. Rep., 930, there was a mere aggregation of mechanical functions and in that sense there was no patentable process. In *Blakesly Novelty Co. v. Connecticut Web Co.*, 78 id., 480, a claim for an alleged process was adjudged invalid upon the ground that it involved "merely the use of well-known instrumentalities upon old objects to accomplish the better result, without any change or adaptation except by means of skilful manipulations." In this case *Locomotive Works v. Medart* was referred to, but considered inapplicable. In *Appleton Mfg. Co. v. Star Mfg. Co.*, 60 id., 411, the Court, after remarking that "the utterances of the Supreme Court upon the question whether or not a mechanical process is patentable are not in clear harmony," and pointing out that in *Cochrane v. Deener* the process was "entirely mechanical in character and operation," held the patent sued on to be void upon the ground that it covered merely "a discovery of a new use for old devices, which does not involve patentability;" and this was the ground upon which the case had been decided in the Court below (51 Fed. Rep., 284).

The Result of the Authorities Relating to Process Claims.

Whatever suggestion may have been made or doubts raised as to the true nature of a patentable process, the result of the decisions and the reasoning of the Supreme Court and of the best considered cases in the lower courts is, at least, that, while the mere function or mode of operation of a machine is not patentable, yet the fact that a machine or other mechanical appliances are used in carrying it out does not derogate from the patentability of a process, provided something outside of the machine and its mere operation co-operate with it to produce the desired result, and provided, also, the alleged process is not

a mere aggregation of functions, but is a true process, or in other words, "a mode of treatment of certain materials to produce a given result, * * * an act or series of acts performed upon the subject matter to be transformed and reduced to a different state or thing."

The Fifth Claim of Plaintiff's Patent Under the Authorities.

The process consists of seven distinct steps, unless perhaps, the 3rd and 5th should be considered as substantially one: 1st. The folding of the sheets, because by the terms of the claim the process is "for treating folded printed sheets of paper in Dry-Pressing;" and, as they must be first folded before they can be "treated," the claim is to be construed as though it read: "The process herein described for treating printed sheets of paper in dry-pressing, the same consisting of first folding said sheets, and then subjecting a collection of such sheets to pressure without the use of fuller boards, &c." 2d. The insertion of the rigid end-boards. 3rd. The application of the pressure of the press. 4th. The tying of the bundle while under said pressure. 5th. The removing of the pressure. 6th. The immediate removal of the bundle from the press. And 7th. Allowing the bundle to remain tied sufficiently long to fix and complete the dry-pressing.

The fifth claim therefore does not cover the mere operation or function of the patented press. The operation of the press is but one step in the process. Its function is to compress whatever is put into it and this function is exhausted as soon as the power has been fully applied. But the dry-pressing has not yet been done. It is shown by several witnesses that, if the bundle were not tied or after tying were immediately opened, the desired result would not be produced (Robertson, Record, pp. 36-7; p. 89, ans. 66; Suydam, p. 197, ans. 84-5). In order to effect the result of dry-pressing, it is necessary to allow the bundle, not to remain in the press under pressure, but to remain under the pressure outside of the press "sufficiently long to fix and complete dry-pressing;" and it is so expressly stated in the claim. The process was entirely new and, as shown by the witnesses, a very valuable one.

in the art. Outside of the mere operation of the machine are the folding of the sheets, which is done before they are put into the press; the tying of the bundle, which is done not by the machine, but by hand, and the subsequent retaining of the sheets under the continued pressure of the tie, which is also outside of the press. Moreover the rigid end-boards are not necessary to the operation of the machine nor even to its practical use for some purposes, but are additional to it, because, for the mere bundling of printed sheets or gathered books, the press could be used without such end-boards, as, e. g., the Palmer Press is said to have been used.

Nor is the process claimed in any sense a mere aggregation of mechanical functions, but each step is necessary to the carrying out of the process and co-operates with every other to produce the unitary desired result. The first step, folding, is necessary, not merely because the press used is adapted to receive folded sheets, but because the process can be carried out only by presenting face to face the raised surfaces caused by the printing and, by their action upon each other under continued pressure, causing their effacement. The folding also appears to be necessary because in the operation of folding a film is created upon the ink and smearing and set-off in the pressing are thereby prevented (Suydam, p. 194, ans. 68). The rigid end-boards are necessary, because only by their use is it possible "to distribute the pressure over the whole area of the ends of the bundle," and thereby obtain uniform smoothness over the entire surface of the page. The pressure of the press is necessary to produce the conditions under which the effacement of the type indentations is ultimately effected. The tying of the bundle is necessary, as it is to be removed from the press. The removal of the bundle from the press is necessary in order that the press may be utilized for succeeding bundles, otherwise but two press-fulls a day could be dry-pressed. And, finally, the allowing of the bundle to remain tied for a sufficient length of time is necessary, because, as we have seen, the dry-pressing would not otherwise be effective. Each of these steps therefore is essential to the

process and co-operates with every other step to produce the result of effacing the type indentations.

If then the process claimed is not the mere function of the machine or a mere aggregation of mechanical functions, why is it not patentable? Certainly it can not be said that it does not clearly fall within Mr. Justice Bradley's definition of a process in *Cochrane v. Deener*.

The omission of the fuller-boards is also to be noted, for in this respect the case resembles *Lawther v. Hamilton*; and as in that case the whole improvement resided in the omission of the muller-stones and the providing of crushing rollers more powerful and suitable than theretofore used, so here the improvement in part resides in the omission of fuller-boards, which had always been used in dry-pressing, and at the same time providing instrumentalities suitable for supplying the place of these omitted instrumentalities. It is submitted on the authority of *Lawther v. Hamilton* that, if there were nothing else in the process but the omission of the fuller-boards, it would be patentable.

The Process Involves "Elemental Action."

But even if the language used in *Locomotive Works v. Medart* is to be given its broadest possible scope, the claim in question would not be obnoxious to any doctrine either laid down or suggested there, and we submit that it covers a patentable process, because it involves "elemental action," or the operation of natural forces.

As this defense was not raised until very recently, we have not in the record any expert testimony on either side expressly directed to the question. But such testimony is unnecessary, as the validity of our present proposition must be apparent with but slight examination. We have seen that, when the pressure of the press is relieved the indentations caused by the printing are not effaced, and that they are effaced after the bundle has remained under the pressure of the tie for a sufficient length of time and, as Mr. Robertson points out (Record, pp. 36-7), the longer it so remains the better. The effacement of the type-indentations is therefore going on in the bundle

after it has been removed from the press and is manifestly due to something which is outside of the mere operation of the press. It is apparent that the fibres of the paper are resilient and spring back upon any relaxation of the pressure, and that the cord with which the bundle is tied is also elastic. The immediate result of relaxing the pressure of the press therefore is that the bundle is to some extent opened or spread and the cord is to the same extent stretched (Suydam, p. 196, ans. 80). The opposing forces, the resiliency of the fibres and the elasticity of the tie, are thus brought into competition, with the result that the latter, being the stronger—for "a powerful tie" is expressly demanded by the terms of the specification (p. 1, line 33, Record, p. 93)—prevails, and the displaced fibres are gradually and surely forced back into their original seats. Moreover, as the raised surfaces of the paper are opposed to each other, the resiliency of the fibres which thus act upon each other, is itself an efficient agency in gradually working back the fibres into the seats from which they have been displaced by the type. Can there be any doubt, then, that this is "elemental action," within the meaning of the language used in the Medart and Westinghouse cases, and is it not as clearly such action as was the action of the current of air in *Cochrane v. Deener*, the absence of atmospheric pressure in *Eames v. Andrews*, or the action of heat and moisture in the other cases above referred to?

In the language of the Court of Appeals in *Chicago Refining Co. v. Glucose Co.*, supra, the apparatus pointed out in the patent is merely "subsidiary to the process," "is functional, towards the result intended only as supplying conditions under which movements and changes of structure due to the natural qualities of the substance treated, take place."

We submit, therefore, that the 5th claim of the patent in suit is not anticipated or limited by any of the matters brought forward in this case, and is, even upon the strictest construction of the language used in the Medart case, a valid process claim.

THE MACHINE AND THE 3RD ASSIGNMENT OF ERROR.

But to accomplish this process of dry-pressing Mr. Jones invented also a press, the chief features of which are (a) the inclined press-bed, having longitudinally slotted sides, (b) the compressing heads having open cross-ways with which the longitudinal slots in the sides correspond, "to afford access to the work while in the press to tie it into bundles," and (c) the adjustable guide rods for centering bundles of signatures of different sizes; all of which perform important functions in the conduct of the operation of dry-pressing according to his process. The most striking of these features and possibly the most important for the pressing of folded signatures is the inclined press-bed or trough. It is thus described in the specifications:

"It consists of a bed, H H₂, mounted upon uprights, E and K, in such manner that it has a downward inclination from the former to the latter upright, as shown in Fig. 1, and the sides of said bed H H₂ are set latterly inclined, trough form, so that the folded paper may securely lodge and carry therein while being operated on. The sides H and H₂ of said bed are longitudinally slotted at H₁, to correspond with the open ways L₂ L₂ of the press-heads, as shown in Fig. 4, to afford access to the work while in the press to tie into bundles, as shown in Figs 1 and 2."

And one of the objects of the invention is stated to be:

"To furnish a press-frame, having sides peculiarly set and arranged and provided with longitudinal slots therein corresponding with the ways in the press-heads, above referred to, and for the same purpose as well as to rightly lodge and center the paper with relation to the middle of the press-heads."

The hydraulic press used in the old process was a standing press in which the sheets were spread out flat between fuller-boards, and the pile was built up with wooden boards inserted at intervals (Jones, p. 31, ans. 38; Robertson, p. 27, ans. 7), to steady it and keep it reasonably true. But it is evident such a press would not answer for dry-

pressing folded sheets, one and perhaps the principal reason being that folded sheets by reason of their folds are much thicker at their backs and heads than at their outer and lower edges, and hence it would be practically impossible to pile up any considerable number of them; and even if such pile could be made the inevitable result would be that, as soon as pressure was applied, the sheets would slip and the "set-off" which is to be so carefully guarded against in dry-pressing would take place. The difficulty of erecting such a pile even of gathered books was experienced in the use of the so-called Palmer press to such an extent that the operators were compelled to pile books "back and front or 'head and tail,'" and even then the result was loose and crooked bundles which had to be straightened by knocking them on the floor—an operation wholly inadmissible in dry-pressing. But in the inclined trough of the Jones press the sheets, laid with their backs and head folds down (Penicks, p. 68, ans. 24), are securely lodged and carried, and when the pressure is applied only gentle pressure by the workman is necessary to keep them straight and in the line of resistance.

Several of the plaintiffs' witnesses testify with regard to the importance of the inclined trough. Mr. Penicks' statement (p. 67, ans. 15-16), has already been quoted, supra, p. (see also, p. 77, ans. 44-7). Mr. DeVinne, speaking of the most striking features of the Jones process, says (p. 57, ans. 24):

"I may add one, and that is his apparatus for keeping folded signatures in a gutter or channel, and directly in the line of resistance so that they will not spring or wobble under pressure."

And (ans. 31):

"In that position it keeps the signatures straight and up to the guides and side before pressure is applied. When pressure is applied a gentle pressure on the part of the workman can keep the signatures to be pressed in line. If the sheets or signatures were upright without any defense or protection on either side, they would spring and wobble, and I do not see how it would

be possible to keep them straight or in the line of resistance."

These witnesses compare the inclined trough with the press admitting only a vertical pile. Mr. Robertson compares it with the horizontal trough and also states another advantage. He says (p. 76):

"Q. 5. In the Jones machine does the incline press-bed perform any special function?

A. It does; it has two purposes, one of which is to keep sheets from falling down when piled in the press without the assistance of any device for keeping them in place, such as is necessary when the trough is laid horizontal. The other purpose is to keep one of the heads in such a position that the operator can readily manipulate the tie in the crossways."

The second striking feature of the Jones press is the compressing heads provided with open crossways. The specification states that one of the objects of the invention is "to furnish a dry-press proper in which the compressing parts or heads—that is, the base and plunger—are constructed dividedly or with ways through them to afford access through them to readily insert and manipulate the twine, and to tie the bundles of paper while held compressed, thus securing the bundle together by a powerful tie, which, when they are removed from the press, retains its force *ad libitum*."

And also:

"The sides H and H₂ of said bed are longitudinally slotted at H₁ to correspond with the open ways L₂ L₂ of the press-heads, as shown in Fig 4, to afford access to the work while in the press to tie into bundles as shown in Figs. 1 and 2."

The object of the open crossways therefore is to afford access to the work in order to readily insert and manipulate the twine and to secure the bundle by a powerful tie, an object which apparently could be accomplished only by free access of the hand and forearm. The function and great advantages of these open crossways as illustrated by

practical use are thus stated by Mr. Penicks (pp. 68-9, ans. 24-5):

"Q. 24. How were the signatures tied in the Jones machine or process?

A. In this inclined rectangular trough you placed a pressing board in the lower end of the trough against the lower platen connected to the piston. The signatures were then placed against the block,—heads against the outer side of the trough, and the backs against the lower side of the trough,—until the trough contained five hundred signatures; then another end pressing block was placed at the upper end of the bundle of signatures near the upper stationary platen in the trough; then the pressure was applied and the work in the trough was gradually pressed up to the upper platen of the trough until the amount of pressure required was obtained, *these platens, top and bottom, being split crosswise, and the large opening admitting of the arm. The rope was then passed through these openings around the bundle of the work with the pressure on, and securely tied.* After the bundles are securely tied, the pressure is removed from the signatures in the trough. The work can then be removed from the pressing machine for storage purposes with the pressure still retained.

Q. 25. Did the open crossways admitting the hand and forearm perform any function in this operation?

A. Yes, necessarily. *It would be almost impossible to tie the rope around the bundles all the way unless these openings were in these cross-heads, as they admit, especially the large opening in the platen, of passing the arm through the large opening in the platen, then through the opening in the head crosswise section to the opening in the lower bed of the press, then around the large opening in the lower crosswise section, to the opening in the back, then around again to where it is tied."*

And Mr. Robertson states (p. 76-7, ans. 6):

"Q. 6. Do the open crossways of the Jones machine perform any special function?

A. They allow the insertion of the hand and part of the arm of the operator, whereby he can readily pass the cord around the bundle of signatures in both directions and manipulate the loop so as to bring it in the center of the end board when the tie is being fastened."

The third striking feature of the Jones press is the use of the adjustable rods, the function of which is apparent without extended explanation, namely: to form in a large sized press a receptacle for small sized sheets and to vary the size of the receptacle according to the size of the sheets so that the tie will come directly over the center of the bundle, without which the pressure would not be evenly retained upon the sheets and the bundle would be liable to become crooked and hence the process of dry-pressing would become inefficient.

These three features of the Jones press are covered singly or in combination by claims 1, 2 and 4 of the letters patent in suit, which are as follows:

"1. In a printer's and bookbinder's dry-press and sheet-tie, the compressing heads C D D' and B2 F' F, constructed with crossways L2 L2 centrally arranged through them, substantially as an for the purpose herein set forth.

2. The inclined press-bed H H2, provided with longitudinal slots H1 H1 in its sides, in combination with the press-heads B2 F' F and C D D', having through them, the cross-ways L2 L2, correspondingly arranged with said slots, substantially as and for the purpose set forth.

4. In combination with the dry-press bed H H2, the device of a set of removable ledges, f, or a set of adjustable guide-rods, m, arranged as and for the purpose set forth."

A vigorous attack was made upon the 1st and 2nd claims, and, besides the so-called Palmer press, numerous patents for hay, cotton, wool, yarn, tobacco, and manure presses, antedating the Jones application for the patent in suit, were cited for the purpose of showing that the matters covered by said claims were either anticipated or involved no invention.

The Proof of the Alleged Palmer Press.

Before referring to the patents cited by defendant, it may be well to consider briefly the proof of the so-called Palmer press, which is set up in the answer as an anticipa-

tion of the Jones press, and is alleged to have been used in the bookbindery of John Palmer, in Philadelphia, as early as 1873 or 1874. Four witnesses were called for the purpose of describing this press and its operation and fixing the date of its introduction into the Palmer bindery. One of the witnesses, McKee, by some marvelous process is enabled to guess as the date of its introduction the precise time fixed by the principal witness, Schrank, to wit: 1873 or 1874, but says he is not positive, and on cross-examination he declines to fix even approximately the date of any of the important events which he narrates, admitting his utter inability to do so for the reason that his memory, at 74 years of age, "is not so bright as it was." He was, with several brief intermissions, in the employ of Palmer and his successors from 1849 or 50 to the time of giving his deposition, and states no circumstance in support of his guess at the date given by him. The only important matter contained in his deposition bearing upon this question is that, to the best of his knowledge and belief, Palmer introduced this press into his bindery while he was in the Tatham building (ans. 7).

Another witness, Davis, was employed in the bookbindery of John F. Busch in the Tatham building from 1872 to 1878, during which time he saw a press for bundling gathered books in the bindery of Palmer in the same building, but he gave it very little attention, is unable to describe the important parts of the press and makes no attempt to fix the time when he first saw it, except within the limits of the years above stated.

The bookkeeper of Tatham & Bros. was called to prove the date when Palmer moved into the Tatham building, to wit: on or about May 15, 1874, but there is nothing in the case to show how long he remained there, and it appears by the testimony of several witnesses that he moved twice into the Tatham building and once into the Tatham annex.

The principal witness is Mr. Schrank, who alone attempts to fix the date of the Palmer press with definiteness or positiveness. His story is that in 1863 he introduced into Palmer's establishment a somewhat similar

impression that the inventor may be treated as the lawful prey of the infringer. The doctrine was laid down by this court in *Coffin vs. Ogden*, 18 Wall., 120, 124, that 'the burden of proof rests upon him,' the defendant, 'and every reasonable doubt should be resolved against him.'

To same effect, see *Deering v. Winona Harvester Works*, 155 U. S., 286, 300-301.

The Patents Cited.

The principal point of the attack made by Mr. Hood with the patents which he cites is the first claim covering the compressing heads constructed with open crossways. Mr. Robertson, in his answer to question 3 (Record, pp. 73-6), to which the Court is respectfully referred, furnished a complete answer to this attack and leaves little to be added. It is admitted that many of the patents cited show grooves or slots and even cross grooves in which strings may be laid and even, by the aid of a needle or rod, inserted when the pressure is on and drawn taut, but they show no such open crossways—peculiarly adapted to a "dry-press"—as those shown and described in the Jones patent, by means of which, by the insertion of his hand and forearm, the operator is enabled to have "free access to the work," "to manipulate the twine" and "secure a powerful tie," such as is necessary for the purpose for which the press was especially designed. The Dingham press, upon which great stress is laid by the Appellant, and the only paper press cited by him, is merely a machine for bundling wrapping paper and incapable of producing much pressure (Robertson, pp. 88-9, ans. 65), in which the paper is held in position by a series of clamps while the string is passed around between them one way and tied; and it is confidently submitted that there is nothing in its construction as shown by the drawing or described in the specification which would naturally suggest to one skilled in the art the compressing heads, constructed with open crossways, of the Jones patent.

As to the second claim, Mr. Hood is very unfortunate. The only trough-like press-bed which he could find is in

the tobacco press of Hardesty. This is a *horizontal* and not an *inclined trough*, and the slots in its sides have no function except to save material. It is a mere receptacle for the hogshead and false hogsheads while the tobacco contained in the latter is forced into the former, and the hogshead is not tied but headed up. But here again Mr. Hood's usual fatality attends him, when he boldly declares (ans. 4, p. 100): "I do not think it involved invention to incline the press-bed, especially in view of the fact that inclined trough-shaped beds or receptacles, arranged to receive and hold in regular order a series of folded sheets, was a common construction in folding machines for folding printed sheets."

Pressed on cross-examination to say what machines he had in mind when testifying as above, he cites U. S. Patent No. 186,309. But an inspection of that patent reveals that he is again mistaken, as it shows and describes merely two boxes for the alternate reception of sheets from the folding machine and *not inclined to the horizon, but horizontal and inclined toward each other.* This structure is fully explained by Mr. Robertson (ans. 3, pp. 75-6).

Mr. Hood cites several other trough-like structures shown in several U. S. patents, but he admits that in these he "believes" "the trough is not inclined but lies horizontal," and an inspection of the patents fully corroborates his "belief."

In view, therefore, of the complete failure of the attack upon the second claim and of the great utility of the inclined press bed as shown by the testimony of the witnesses Penicks and DeVinne, it is confidently submitted that the claim must be sustained.

CLAIM 4 AND THE 5TH ASSIGNMENT OF ERROR.

As to the 4th claim no anticipation has been set up and defendant's expert, Mr. Hood (Record, p. 119, ans. 58), distinctly admits that, among various patents cited by him, he did "not find any reference for the 4th claim," and, as the so-called Palmer press contained no guide-rods of any kind, of course it cannot be relied upon as an anticipation, either in whole or in part, of said claim.

But it is contended that this claim is void for ambiguity, and *Carr v. Rice*, 1 Fish., 325, is cited in support of the contention. In that case the claim was for "the upright stationary bolt, or bolt and scourer combined with its top and cover, or in combination with claims 1, 2 and 4, or either of them, or their equivalents, to produce like results in the flouring process," and the claim was very properly rejected as "good for nothing, on account of its uncertainty." But very different from this claim is claim 4 of the patent in suit, which is clear and certain, and the only criticism to which it is open is that it is in the alternative. But all alternative claims are not void, for such claim will be sustained when it is the equivalent of two claims, one for each alternative; *Tuck v. Bramhill*, 6 Blatch., 95; S. C., Fish., 400, where Judge Blatchford held valid a claim for the forming of a roll of packing for pistons "either in connection with the India rubber core, or other elastic material, or without the core," remarking:

"This is equivalent to two separate claims,—one for the forming of the roll with the core and one for the forming of it without the core. The patentee might have made two such claims, separately numbered, and both would have been good claims, if the inventions were new with him. He did that in effect in the claim he made."

A claim similar to that in *Tuck v. Bramhill* was sustained by the Supreme Court in *Rubber Co. v. Goodyear*, 9 Wall., 788, 795.

In *Brown v. Whittemore*, 5 Fish., 524, the fourth claim of the patent sued upon was "The arrangement of the rake-head E and foot-treadles H J and G K, or either, in relation to each other and the axle B substantially as and for the purposes set forth." In disposing of this branch of the case Lowell, J., said (p. 527):

"We agree with the defendant's argument that the patentee might not be able to claim an alternate combination as he does in his fourth claim, if the separate combinations would not make an operative machine;

but it seems that the combination of either of the foot-treadles with the rake-head and the axle does make such a machine."

And it was held that the claim was valid and infringed, the defendant using but one set of treadles.

In *Union paper Bag Co. v. Nixon*, 6 Fish., 402, 412, the claim covered *inter alia* "pulleys d d or their equivalents." In holding this claim valid Emmons, J., said:

"An alternative claim is void only in those instances when it claims positively neither of several subjects, but is good if all, of many which are mentioned, are claimed, as one of the other are employed by an infringer. If it is said A or B is claimed, this asserts a right to neither; but to claim the one or the other, as either are used, with the assertion that it has been discovered both are interchangeably available for specified purposes, is not an alternative claim, within the cases cited by defendants. Such is the third claim in this case."

It thus appears that an alternative claim is valid either (a) when it is the equivalent of two claims, each of which standing by itself would be a valid claim, or (b) when the alternative elements are equivalents.

In the present case claim 4 of the Jones patent may be sustained upon either ground—upon the latter ground because, as Mr. Robertson points out (record, p. 38), the removable ledges and adjustable guide-rods are substantially equivalent to each other and an inspection of the patent, and particularly figures 3 and 4 of the drawing, shows that the *ledges are guide-rods* and differ from the so-called rods only in location and in being rectangular instead of round. The specification shows that both kinds of rods perform precisely the same function, viz: centering intermediate and small sized sheets, in precisely the same manner, to wit: by decreasing the size of the trough. Both are removable and "are allowed to pass freely through" one of the compressing heads by means of openings therein made for their accommodation. So clearly equivalent do they appear to be that it is difficult

to see how the defendant, using only the adjustable guide-rods, could escape the charge of infringement if the claim included merely the ledges and were silent with respect to the rods.

But assuming that the claim cannot be sustained upon the ground of the equivalency of the alternative elements, it is submitted that it must be sustained upon the other ground, to wit: that the claim is substantially equivalent to two separate claims, each covering one of the two alternative elements "in combination with the dry-press bed." It is not left "uncertain which of the several things the inventor intends to claim," but it is made abundantly clear that he intended to cover each of them and this is sufficient to support the claim, Robinson on Patents, vol. 2, sec. 520.

In the Telephone Cases, 126 U. S., 1, 537-8, a claim for "the method of, and apparatus for, transmitting vocal and other sounds telegraphically," &c., was held to be substantially two claims, (1) for "the method" or process and (2) for "the apparatus;" and there seems to be no good reason why a claim in the disjunctive should not be given similar effect.

6TH ASSIGNMENT OF ERROR—INFRINGEMENT.

As to the infringement of the process claim there is no controversy. By his contract with the State of Pennsylvania the appellant was bound to "dry press" his work (Grier, Record, pp. 13-14, ans. 9, 21; Busch, p. 182, 5, ans. 30), and the superintendent of Public Printing testifies that the work was "dry pressed" by the appellant in a manner identical with the process described in the patent in suit and covered by the 5th claim (Record, Grier, pp. 13-15, ans. 10-33; see also Miller, pp. 19-20, ans. 22-31; Jones, pp. 24-6, ans. 6-12; Robertson, pp. 41, ans. 10), and no denial of this fact is made or attempted, and it is moreover expressly admitted by Busch himself (p. 180, ans. 8).

It is clear also that the 1st and 2nd claims were infringed. The machine used by the appellant, as described by the witnesses, Miller (Record, p. 18, *et seq.*) and Jones (p. 24, *et seq.*), and as shown in "complainants' exhibit

model No. 1" and "complainants' exhibit wood-cut of Seybold Signature Press," (see Record, between pp. 88 and 89), contains, 1st, compressing heads constructed with open cross-ways arranged centrally through them; and, 2nd, an inclined press-bed provided with longitudinal slots in its side, in combination with the press-heads having through them the cross-ways arranged correspondingly with said slots. Mr. Robertson makes the usual comparison between claims 1 and 2 and the press used by the defendant (Record, pp. 39-40), finding all the elements of these claims embodied in the press, and his conclusions are not controverted by Mr. Hood.

As the infringing machine contains the adjustable guide rods in the combination covered by claim 4, it is clear that that claim was also infringed; and this does not appear to be denied.

7TH ASSIGNMENT OF ERROR.

In this assignment the appellant complains that the Court below erred in over-ruling the motion to vacate the Interlocutory Decree. But this we submit is not assignable as error. The granting or refusal of relief by rehearing or reconsideration and vacation of a decree is purely discretionary and is therefore not reviewable; *Brockett v. Brockett*, 2 How., 238; *Steines v. Franklin County*, 14 Wall., 15, 22; *Buffington v. Harvey*, 95 U. S., 99; *Lewisburg Bank v. Sheffey*, 140 id., 445, 452. The reviewable error of the Court, if any there was, consisted in entering the Interlocutory Decree and in subsequently confirming it by the final decree, and not in over-ruling defendant's motion. Moreover the motion, which is not printed with the record, was very irregular, and set forth no specific grounds upon which a reconsideration of the decree was asked. Furthermore the motion asked for such reconsideration of the Interlocutory Decree only in so far as it sustained plaintiff's fifth claim and was not based on the grounds now set forth in this assignment of error.

8TH, 9TH AND 10TH ASSIGNMENTS OF ERROR—EXCEPTIONS TO THE AUDITOR'S REPORT.

These assignments attack the action of the Court below in over-ruling the exceptions to the Auditor's report. The Court is respectfully referred to the very clear and able report of the Auditor (Record, pp. 147, *et seq.*), which is itself a complete vindication of the conclusions reached by him and, in all matters which it touches, a refutation of the argument contained in the appellant's brief. We are therefore relieved from the necessity of considering, except very briefly, this branch of the case.

The appellant, as we have seen, was the contractor to do the public printing of the State of Pennsylvania, and, by his contract, was required to "dry press" all his printed sheets, and for that reason, as he himself testified, he purchased the infringing machine (Busch, p. 182, ans. 30), and that he did "dry press" his work by the Jones process he also admits (Busch, p. 180, ans. 8, referring to Grier, Record, pp. 13-14, ans. 11-17).

The rule for the ascertainment of the gains, savings and profits for which an infringer is bound to account in equity as laid down in *Tilgham v. Proctor*, 125 U. S., 136, is, that he is liable for "the profits," or "the fruits of the advantage which he derived from the use of (the) invention, over what he would have had in using other means then open to the public and adequate to enable him to obtain an equally beneficial result." And this is the rule which was followed by the Auditor. It was contended, however, at great length by the appellant in the Court below that, as the patent in *Tilgham v. Proctor* was for a chemical process, the rule there laid down is inapplicable here. But the elaborate discussion of the rule by the Court clearly shows that it was intended to be laid down as a rule of universal application in equity, irrespective of the special character of the invention, and so do the cases cited by the Court in support of it, which involved mechanical processes and machines.

As means adequate to enable the appellant "to obtain an equally beneficial result," the Smasher, the Palmer

Press and the Gordon Press were set up by his counsel and were properly rejected by the Auditor. As we have seen (*supra*, pp. 17-19), the Smasher did not and could not "dry press" or remove type indentations, and the Palmer Press was never used for such purpose and could not be (*supra*, pp. 30-3.). The Gordon Press was introduced into the case in the cross-examination of Mr. Grier, who stated, that, having for some time used the fuller-board process of removing type-indentations in letter heads and similar commercial work, he procured a Gordon press, "that did the work without any necessity of removing the impressions;" and upon this flimsy ground the use of the Gordon press is now put forward as a basis of comparison with the Jones process. There are two answers to this contention: 1st, the Gordon press is suitable only for small job work such as bill heads, circulars, letter heads and cards, which are small in size and do not require any special smoothness of finish, the press making a very light impression, which in work of this character does not need to be removed. But it is incapable of printing such work as the defendant did for the State of Pennsylvania (see Grier, *supra*, and Suydam, Record, 192, ans. 56-58). And, 2nd, it does not "dry press" at all, and by his contract and the statute under which it was made, the defendant was bound to "dry press" all his work. Hence the Gordon press was not a means "adequate to enable him to obtain an equally beneficial result."

The Auditor adopted as the basis for comparison the old fuller-board process, and in this we submit he was clearly right for the reasons stated in his Report (Record, p. 149 *et seq.*). Appellant's allegation, in his 10th specification of error, that this process had not been "in use in any establishment for many years prior to the Jones invention, and not for a half century prior to the time of infringement," is wholly incorrect and has not a spark of evidence to support it. On the contrary, it is abundantly shown that this was the process in use immediately prior to the Jones invention (Robertson, Record, pp. 35 *et seq.*; DeVinne, pp. 54-5; Penicks, pp. 64-5; Suydam, pp. 185-6 *et seq.*; Jones, pp. 198-9); was still in use in at least one

establishment in Philadelphia as late as September, 1896 (Suydam, p. 192, ans. 53-4), and at the time of the infringement was the only process, other than that of Jones, capable of producing equally beneficial results (Jones, pp. 198-9, and see the testimony of the other witnesses cited). There was but one other process of "dry-pressing," viz: pressing the sheets between heated plates, and that was obsolete (Jones, p. 199, ans. 11).

The appellant, however, complains of the comparison of the process of the patent with the old fuller-board process, upon the ground that in the latter the sheets are pressed flat and between fuller-boards, while in the former the sheets are pressed folded and fuller boards are dispensed with. But the elimination of the fuller-boards is one of the advantages of the new process, and of that advantage the appellant availed himself. As to the other point—it must not be overlooked that, under both processes the real starting point is the sheet, flat as it comes from the printing press. Under the old process the sheet, after being dried, is first dry-pressed and afterwards folded, while under the Jones process the sheet is first folded and then dry-pressed. But in both cases the same result is reached, to wit: *dry-pressing and folding*; and where, as in the case of the appellant, the same person is both printer and bookbinder, the same result is reached in the same establishment and by the same person. Why then, for the purpose of ascertaining profits, should the two processes not be compared?

Moreover the claim by its terms demands that the sheets be folded and it is abundantly shown that the folding of the sheets is a necessary condition of the successful carrying out of the process. And, as the sheets come from the press flat, is this not equivalent to saying that the first step in the process is the folding of the sheets? One of the great difficulties under which counsel for the appellant appears to have labored throughout this case is that the process claim speaks of dry-pressing only "folded sheets." But, as the preliminary folding is a necessary condition, and that condition is expressed in the claim, we submit that the claim must be construed as though it

started with the flat sheets and read: "The process herein described for treating printed sheets of paper in dry-pressing, the same consisting of *first folding said sheets*, and then subjecting a collection of such sheets to pressure without the use of fuller-boards, &c." If the claim had been put in these terms and had stated explicitly, as it does impliedly, the first step of the process to be the folding of flat sheets, the mind of counsel for appellant would doubtlessly have been relieved of much unnecessary worry and the case of much unnecessary discussion.

But after all the point to be reached is the saving to the appellant. By his contract with the State of Pennsylvania he was bound to dry-press his work, and he did it by the process of the patent in suit. And if, by the use of that process, the cost to him of first folding and then dry-pressing was less than that of first dry-pressing and then folding, why should he not account to the appellees for the saving?

The Auditor, therefore, was clearly right in making his comparison with the fuller-board process as the only process of dry pressing them open to the public and adequate to enable the appellant "to obtain an equally beneficial result." And comparing the infringing process with the fuller-board process the Auditor found that gains and savings accrued to the appellant under two heads, viz: saving of wages and saving of paper.

Saving of Wages.—The actual number of sheets dry pressed by the appellant and the actual cost thereof in wages was shown by the testimony of appellant himself (Busch, p. 180, ans. 5, 9-10). Over against this it was shown by competent evidence what it would have cost, at the wages paid in appellant's own establishment, to dry press the same number of sheets by the fuller-board process (Jones, p. 200 *et seq.*, ans. 18 *et seq.*; Suydam, p. 186-7, ans. 15 *et seq.*

Saving in Paper.—It was shown that by the old fuller-board process there was a waste of about ten sheets of paper per thousand sheets (Suydam, p. 188, ans. 25; Jones, pp. 203-4, ans. 29), while by the Jones process this waste did not exceed one sheet per thousand (Jones, su-

pra), and according to appellant's own statement there was practically no waste (Busch, pp. 181-2, ans. 28), a saving by the infringement of at least nine sheets per thousand. It was also shown that at the time of the infringement this paper was worth in the market from six to seven cents per pound (Johnston, pp. 294-5); and this saving the Auditor very properly allowed.

There was therefore a clear cut mathematical basis for the calculation of the savings of the appellant, and this case does not at all resemble any of the cases cited in the appellant's brief. Nor is it a case like the cases in which the saving by a machine is due in part to the patented features of the machine and in part to its other features. Here the entire saving was due to the infringement of appellees' process of "dry pressing" and that entire saving belonged to them, *Crosby Valve Co. v. Safety Valve Co.*, 141 U. S., 441, 454, and cases cited.

One other matter may be noticed which, although perhaps not very important, may be misleading. The appellant is wrong in asserting, throughout his brief, that under the Jones process the sheets were *smashed* before being dry-pressed. There is no warrant at all for this assertion. He has evidently been misled by the fact that the patent shows a "Bulk Compressor" (see supra, p. 12), which, it was at first supposed by the inventor, would be a useful adjunct to enable him to compress the bulk of loosely folded sheets and thus enable him to get more sheets into his press. But, in the technical sense, it is not a "smasher" and its use is not "smashing" (see supra, p. 19). The 5th claim does not demand preliminary smashing, and as a matter of fact it was never done, nor has, in practice, the use of the Bulk Compressor been found necessary.

It is respectfully submitted that there was no error in any of the proceedings in either of the Courts below and that the decree of the Court of Appeals of the District of Columbia should be affirmed, at the costs of the appellant.

Respectfully submitted,

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Counsel for Appellees.